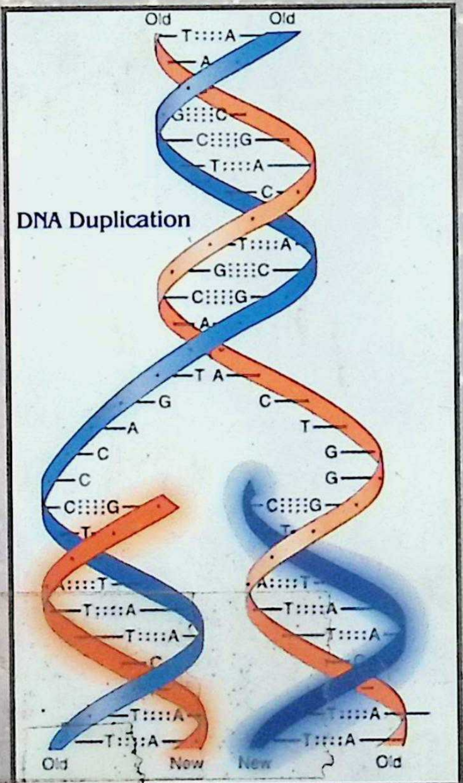
Vedic Cell Biology with Life Energy & Rebirth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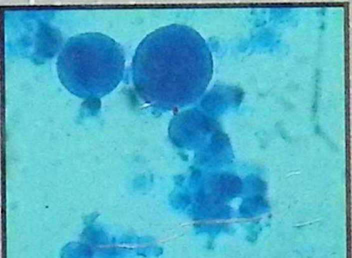
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Dr. C.P. Trivedi

Vedic Cell Biology with Life Energy & Rebirth

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The Vedas are the oldest literary record of the human civilization on the earth, as such they represent common heritage of the human society. The same has been explored by Dr. C.P. Trivedi in his book Vedic Cell Biology with Life Energy and rebirth.

Dr. Trivedi has interpreted the Vedic hymns in a chronological order with depth of Vedic knowledge. He has done it through the knowledge of modern science. It may give new light to the scientists, for them a new hypothesis on life energy, which was known to the ancient Vedic scientists long ago. The whole play of life on the earth is due to the assimilated carbon, it has been explored under the wedding of Aryaman.

The living organisms at cellular level exhibits the same functions, it has been discussed under– **The race of Ṛbhus**.

Dr. Trivedi has given in his interpretation of Vedic hymns, The theory of chemical evolution of life on the earth as suggested by A.I. Oparin (1922), which is the testimony that beyond this the scientists have not traced the theory about the life energy and Rebirth, the discovery of DNA by Watson and Crick (1955) has opened the door of Biotechnology all over the world but they are silent on Rebirth, the Vedic knowledge of DNA can open new fields of Research in this direction, as Dr. Trivedi has also discussed the theory of Rebirth with reference to the Vedic knowledge.

The work of Dr. Trivedi reveals the fact that once in the history, Vedic culture flourished on the earth, without it such work having global importance is not possible, it is also not possible that through meditation in the state of trance, such knowledge can be explored?

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Vedic Cell Biology with Life Energy & Rebirth

Dr. C.P.Trivedi

Principal,
Government Girl's College,
Ratlam - 457001 (INDIA)

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Dedicated to

The human society on the earth

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Dr. Bal Ram Jakhar

GOVERNOR
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Foreword

Vedas are the oldest literary record of the human civilization on the earth. As such they represent common heritage of the human society. Dr. C.P. Trivedi has explored the same in his book 'Vedic Cell Biology with Life Energy and Rebirth'. All the four Vedas are the foundation of Indian culture. They contain ocean of knowledge and set what should be the ideal life-style of people. He has interpreted the Vedic Hymns in a chronological order with depth of Vedic knowledge.

The teachings of Vedas should be made popular. It is so very necessary in the context of what the present political and social environment in the country is. The book is monumental in its contents. Dr. Trivedi has done a commendable work.

(Dr. Bal Ram Jakhar)

20th November 2006

Phone : 0755-4080170, 4080180; FAX : 0755-4080172

श्रीनिवास रथ
उपाध्यक्ष
Sriniwas Rath
Vice-Chairman

महर्षि सान्दीपनि राष्ट्रीय वेदविद्या प्रतिष्ठान
(मानव संसाधन विकास मंत्रालय, भारत सरकार का स्वायत्तशासी संस्थान)
प्राधिकरण भवन, द्वितीय तल, भरतपुरी उज्जैन - ४५६०१० (म.प्र)

Preface

The death is a natural part of life. A.l. Oparin in 1922 has established the theory of chemical evolution of life on the earth, since than the people are dwelling between the old religious customs and modern science. They want to know the purpose of life. The quest to know about the mystery of life is till persisting in the human mind.

Dr. C.P. Trivedi in his book Vedic Cell Biology with Life energy and Rebirth has tried to trace the oldest and the latest views regarding the Origin of life. Whether concrete or symbolic in solving the age long puzzle is a matter of discussion with open mind. Dr. Trivedi has tried to trace the modern scientific theories in the Vedic hymns.

Ṛgveda largely preserved through a complicated and highly strenuous oral tradition is acclaimed as the oldest book of the world. Veda primarily means knowledge. Oxford dictionary has explained it as 'most ancient Hindu scriptures.' Although its scriptural sanctity seems to have had a major role in it preservation yet the growth of stupendous auxiliary literature round it points to its stock of metaphysics as a perennial source of attraction for its preservation and interpretation. Time and again our social and spiritual leaders in India have drawn on the Vedas for the rejuvenation of social structure on the national plane but there has never been any organized effort the propagation of the Vedas beyond India.

With the establishment of Royal Asiatic Society in Calcutta in the last decade of the eighteenth century, Vedas found their way to the Western world and came in handy for the promotion of philology or linguistics as an important branch of scientific study. Nineteenth century proved highly productive for the Vedic studies in the West. By the first quarter of the twentieth century several translations of the Vedas followed each other in English, French and German. This served as fillip to various disciplines of learning both philosophical and scientific. Vedic contribution of zero to mathematics got firmly established and the concept of separate categories of mind and matter had to face reappraisal. Vedic cosmogony asserted it relevance and attracted the scientists for a deeper analysis. The advance of science from atomic theory to quantum theory has further accelerated the urgency of evaluating the Vedic concept afresh. Dr. Trivedi's work on the Vedic Biology– Race of Ṛbhus is a monumental step in this direction.

I do feel elated in this context to welcome to contribution of Dr. C.P. Trivedi to Vedic studies from the point of view of modern science. Dealing with the Vedic cell Biology, Dr. Trivedi has identified Ṛbhus with the cell. Ṛbhus are invoked by Medhātithi Kaṇva for the first time in the twentieth hymn of the first Maṇḍala.

The divine origin of Ṛbhus is said to have been discovered by the wise

Ayam Devāya Janmane Stomo Viprebhirāsayā/
Akāri Ratnadhātamah. (Ṛg. 1.20.1)

Although lexicographers following the practice of hymns to assign the status of Gods of the subject of its description or praise count the Ṛbhus as God, but Ṛbhus seems like a combination of two roots such as Ṛ to move and Bhū to be. Closely following the first stanza Ṛbhus are credited with the creation of two horses and the process preceding it is visualized as mental– "Manasā Tatakṣ uḥ". Dr. Trivedi has tried to examine and explain the metaphoric representations relating to the race of Ṛbhus and construed a wholesome picture of Vedic Cell Biology and Life Energy.

A Close scrutiny of 'Asya Wāmīya' Sūkta presenting Sun, Air and Fire as three brothers has revealed step by step the cosmic principles contained by the solar system. Dr. Trivedi talks of metaphors and riddles and proceeds to trace the origin of life and the phenomenon of photosynthesis through seemingly symbolic episodes. Of course the Vedic vision runs the whole gamut and Dr. Trivedi carries the life energy beyond its visible periphery to establish the cycle of rebirth. Vedic view to consider the world as a singular nest– biosphere has now become easily accessible to us in the context of cotemporary expressions like 'global village.' Dr. Trivedi has discussed the Vedic cosmology with reference to *Asya Vāmīya Sūkta* and *Puruṣa Sūkta*, they have treasured valuable secret to life energy, cosmic principles and the solar system.

The problems taken up by Dr. Trivedi are highly interesting and scientific. I am sure the readers would enjoy the confluence of the latest and the oldest sets of awareness in solving the agelong puzzle of creation. Life energy can not be confined to being merely a substantial scientific entity. It has an equally dynamic spiritual value and subsistence to reckon with.

Ujjain
9.01.2007

(Shriniwas Rath)

A Word by the Author

Origin of life on the earth is a puzzling problem for the scientists. The earth is moving towards its peril due to the depletion of the ozone layer and the global warming. The common people are unaware about their duties towards the nature. Hence we are facing the problems at the global level. For the global cooperation we must have a scientific solution. If the problem of the origin of life energy can be solved than we may have a better condition for the global cooperation.

Looking to this it looks that with the establishment of the fact that life on the earth is a chemical synthetic process of evolution and without any aim, A.I. Oparin (1922). The common people are dwelling between the old customs and the modern traditions. It is the main cause of the human unrest on the earth, where the environmental ethics have no role in the life. It is due to the fact that the scientists do not have the exact clue about the origin of life and the aim of life on the earth.

The life and the life energy are different. The lifecycle of an individual is regulated by the DNA (Deoxy ribose Nucleic Acid) and the life energy has been generated at its own due to the streaming of the protoplasm. In the multicellular organisms, circulation of the blood and the nervous system assist it. In the plants movement of the sap assist it. With aging of the concern organs and the cells the life energy get disappear.

The differences, which we observe that the individual person concern are having different mentality and fate. It is due to the cycle of rebirth under the nature, where for every action there is a reaction. It means every individual will have to face the consequences of his deeds with rebirth. After the death of the physical body the thought energy, which is imperishable remains in the universe. When the thought energy find its suitable language code on the duplicating DNA of the embryo, accordingly the language of the DNA decides the fate of the individual as per his past deeds and the development of the physical body will be there as per the parental hereditary characters.

How it is going on in the nature? We can trace the facts from the Vedic hymns with the help of modern science and biotechnology. Accordingly Genetics and the Photosynthesis have been described as a testimony of the Vedic concept on the Origin of life energy and Rebirth. It may act as new hypothesis for the Scientists.

The Vedic literature is in the form of metaphors and riddles. They indicate towards the phenomena of the nature and the natural reactions going on in the nature. With the knowledge of the modern science, the indications can be understood. Hence for the interpretation of the indications one must know the Vedic terminology in its proper way, because Vedic terminology with myths of mythology is a product of long history of climatic conditions. The Vedic deities, they actually represent either the component of nature or natural phenomena. The anthropomorphic nature of the deities, their figurative description with personification is a way of expression of the thoughts about the natural phenomena. Hence the Vedic terminology in terms of modern scientific terminology has been given in the end of the book. Although without reference and the knowledge of the related phenomena the metaphors are hard to understand, where words are only the coded indicators.

The Vedic seers with their skill and labour have preserved their knowledge of the creation in the Vedic hymns, so as to transfer it for the succeeding generation for the welfare of the society. Due to their great skill it has reached to us without break. It is our humble duty to interpret them in their proper way for the welfare of the society. The Vedic Cell Biology, as the race of *Ṛbhus* can throw new light on our present day thinking. The book deals with the modern Cell Biology as well as the origin of life energy.

After a long journey of twenty five years in the field of science as a professor, I have been able to understand the metaphor scientifically, how much I am successful only the related experts in the respective field can give the answer. The suggestions from the scholars if any will be my pleasure.

I bow to the Vedic seers that with their blessings and guidance I have been able to interpret the Vedic hymns up to certain extent. To understand them fully may require another birth.

I feel obliged and respect to Hon. Dr. Balram Jakhar, Governor of M.P. for his kind enthusiasm for writing the foreword on the book. I am also grateful to Acharya S.N. Rath for writing the preface and Dr. Sompal Shastri, Vice-President, Planning, Govt. of M.P. for his valuable comments. I am also thankful to Shri K.L. Joshi, Parimal Publications, for his valuable editing and publishing of the book.

Dr. C.P. Trivedi

Introduction

a. Biosphere

Ecology is a science, which investigates organisms in relation to their environment and a philosophy in which the world of life is being interpreted in terms of natural processes. Recent developments in the field of ecology has recognised that natural components biotic and abiotic are interrelated and they function in an orderly manner as a definite system. The same is known as ecosystem. Accordingly the whole world is an ecosystem. It develops gradually and reaches to its peak through actions and interactions in a cyclic manner in the nature. The stability of an ecosystem lies in the equilibrium of its different components, which is being maintained through homeostasis and ecological check and balance, known as the science of cybernetics. In this way an ecosystem is a self-sufficient and self regulated unit.

The nature is also an ecosystem, where main energy source is the sun as a part of the nature. The earth has biotic and abiotic component, it is known as biosphere with complex processes within it. Through weather and climate, it influences life on the earth in multi-directional ways.

The stability of an ecosystem depends on the equilibrium inbetween its components at the same time there must be a balance between producer plants and consumer animals. The plants are the primary producers, they synthesize food material for the creation at primary level through photosynthesis. As well as they produce oxygen which is essential for life, besides the plants are the only source, which convert light energy in to the chemical energy on the earth. It means the ecosystem is directly influenced by its plant population.

Now it is a scientific fact that life on the earth is purely a natural process of evolution. Life on the earth is due to the presence of ozone layer in the upper atmosphere, which acts as a shield against toxic ultraviolet rays, it absorbs them and filters all the radiations below 3000 Å. Thus ozone layer is directly related with life sustaining processes on the earth. Similarly earth's magnetic field and magnetosphere protects the earth from high energetic solar wind.

The nature is self-sufficient and self regulated but our influences and human disturbances may cause imbalance. At present the earth is facing the same situation, due to the rapid industrialization, population explosion and the deforestation at global level. It is the cause of global warming through 'green house effect', depletion of Ozone layer due to the pollutants like Chlorofluorocarbon, nitrogen oxides and hydrocarbons. They have produced a serious threat for the life on the earth.

According to the Hamburg Institute for Meteorology of Max Plank Society, identical to today's 'green house effect' and consequent global warming had occurred about 18000 years ago (German news Sept. 89 page 25) and a ice age was there, it means earth has faced similar situation earlier too, the same we are facing today. The reference of the Global warming in the Atharvaveda is the testimony of the same.

b. The Vedic Literature

Vedas are the earliest text in the history of human civilization on the earth. Literary *Veda* means knowledge, which has the knowledge of the creation. There are four Vedas *Ṛgveda, Yajurveda, Sāmaveda and Atharvaveda. Ṛgveda* is the earliest and most of the hymns of the Ṛgveda are found in other Veda also, originally only three Vedas have been recognized, the knowledge therein is known as *Trayī Vidyā*. The Ṛgveda is the book of *Praise, Sāmaveda* is the book of chants and *Yajurveda* supply the sacrificial formula for the sacrifice. The *Atharva-veda* has been included later on in the series, it deals with the some of the faiths of common people and medicines. It seems that *Atharvaveda* has least understood, it has cosmological hymns also. They reveal scientific knowledge of the creation.

After the *Vedic* period the Vedic knowledge became traditional, as such the formulas of the sacrificial ceremonies became traditional. To preserve the knowledge of *the Vedic* *hymns* and *Yajña* processes, *the Brāhmaṇa* literature came in to light. Every *Veda* has its related *Brāhmaṇa*, it has three parts- first part is *Brāhmaṇa*, second part is *Āraṇyaka* and third part is *Upaniṣad. The Brāhmaṇas* are related with the sacrifice, *Āraṇyaka* are for deep thinking in the forest and *Upaniṣads are* related with the philosophical thoughts.

The Brāhmaṇas are not the *Veda. The Brāhmaṇa literature* contains a detailed knowledge of the sacrifice and sacrificial ceremonies. The literature has been termed as *Śruti*, which was heard directly. The sacrificial processes are very complicated, hence during the *Brāhmaṇa Period*, the systematic knowledge of the sacrificial ceremonies and formulas in short have been incorporated in the *Sūtra Sāhitya*. This literature is known as *Smṛti*, as the traditions are being preserved through remembering the processes. The same literature is known as *Kalpa-sūtra*. There are different *Kalpa-Sūtras*, -

1. *Śrauta Sūtra,* which have systematic knowledge of the sacrificial ceremony
2. *Gṛhya Sūtra*, which has knowledge of the traditions, related with the family life.
3. *Dharma Sūtra*, which have the knowledge of the duties related with the four *Varṇas* and four stages of life.
4. *Śulba-Sūtra,* it has knowledge for the preparation of *Yajña-vedī*. It is related with the Geometry.

The Vedic literature has a long history. The Vedic hymns are symbolic having the knowledge in the form of metaphors and riddles. It is difficult to interpret the meanings of the Vedic hymns, without the full knowledge of the creation and the different branches of the *Vedas*. With the development of modern science and technology, upto some extent we have touched the height of the Vedic civilization. Hence in the light of the modern knowledge, it is possible to interpret the *Vedic hymns* up to some extent. Besides, there are *Vedāṅga* as *Āyurveda, Dhanurveda, Gandharva-veda* and *Jyotirveda*. The Vedic knowledge can't be understood without the knowledge of *1. Śikṣā, 2. Nirukta, 3. Vyākaraṇa, 4. Chanda, 5. Jyotiṣa, 6. Kalpa*.

The most important work on *the Vedas* is the commentary of Sāyaṇācārya on which most of the translations are based. The Yāska holds a prominent position among the commentators. He has given his commentary in *Nirukta*, he has used *Nighanṭu* for explanation of the words.

Ṛgvedic deities have been described in *the Sarvānukramaṇī* of *Kātyāyana,* It is an index to the *Ṛgvedic mantras*, *Nītimañjarī,* another commentary provides a idea about the social customs and tendencies of *the Ṛgvedic* period.

Different commentaries on the *Vedas* can help in the interpretation of *the Vedic* knowledge.

c. Age of the Vedas

As regard the age of the Vedas and Vedic culture is concern. It has been regarded that the Vedic hymns have been formulated around 2000 to 4000 years B.C. The Archaeologists, historians and astronomers have different views regarding the age of the Vedic hymns. They have no consensus over it. Looking to the depth of the Vedic knowledge in the light of modern science, it seems that the Vedic culture may have flourished on the earth before the ice age. The Green House Effect with consequent Global warming had forced them to compile their knowledge in the Vedic hymns. As per the Hamburg Institute of Meteorology of Max Planck Society, Germany, under a project on *Climap* has reported that identical to today's "Green house Effect" and consequent Global warming had occurred about 18000 years ago. Consequently the ice age was there. With this North America, Europe and Siberia were covered with the thick snow cover, in between Siberia and Alaska a land bridge was formed. Through it the people were migrated. (German News Sept. 89, Page 25). It indicates that the Vedic hymns may have been formulated atleast about 18 thousand years ago. The reference of the global warming in the Vedas is the testimony of the same.

d. The Vedic Deities

Looking to the fact that origin and evolution of life on the earth is purely a natural process of evolution, the living beings are influenced by the forces working in the nature. They have concluded that every thing, which is present on the earth and in the future also it will be only nature (Ṛg. 1.89.10). Accordingly they have emphasized to maintain harmony and equilibrium with the nature. As all the natural components whether biotic or abiotic are equally important, independently each component is complete in itself and inevitable for the nature. As such they have given due importance to the every component of nature. It has been reflected in their concept of *Vasudhaiva Kuṭumbakam* the whole earth is our family. They have regarded the natural components as the deities. The physical features of the Vedic deities are anthropomorphic. Thus head, face eyes, arms, hands, feet and other portions of the human frame as ascribed to them are symbolic. The figurative description is simply meant to describe their activities figuratively, otherwise their connection with nature and natural phenomena are almost clear. It is also evident from the fact that there is no description of the idols and temples in the *Ṛgveda*. To invoke the natural deities is having a deep sense of obligations towards the natural benefactors. They are useful in daily life. As we find in the Vedas that they have also invoked mountains, plough, forest and plants. They have been invoked as divine powers with healing properties (Ṛg. 10.97). The pressing stones- mortar and pastles used in the preparation of soma juice, (Ṛg. 1.285.6) music drums used in the battle fields, arms, arrows (Ṛg. 6-75), besides *Manyu* (wrath) (Ṛg. 10-83,84), *Śraddhā* (Ṛg. 10-151), *Anumati* (favour) and *Arāmati* - (devotion) have been invoked also. It indicates that every useful thing should be used properly.

On the contrary to this, there are aerial foes of deities. These are called as *Asura* and *Dāsa* or *Dasyu* known as demons. The lower class of demons are goblins, they are enemies of men. Commonly they are known as *Rākṣasas*, *Piśācas*-corpse. They represent the microbes and contaminators of the air and soil. They have been termed as flash eaters. These are actually microbial parasites causing diseases in the human beings.

To invoke the natural deities is having a dual purpose, first to indicate the functions of the nature and activity of the natural components. To create environmental awareness among the common people that the natural components are for wise utilization. The exploitation of the nature is a sin, for the exploitation, the nature will punish in its own way by the natural catastrophe. It will be due to the imbalance get created by the mankind in the nature. It is in the post Vedic era, the natural deities get transformed into the traditional worship. It has taken a superstitious turn.

The Vedic seers have described the nature with the name of *Aditi*. They have postulated the fact that in this world what is and what is to be is nature only.

Aditi is the heaven, Aditi is mid air, Aditi is the mother, the Sire and Son: Aditi is all Gods, Aditi five-classed men, Aditi all that hath been born and shall be born (Ṛg. 1-89-10).[1]

It indicates that every thing, which is going on in the creation is due to the *Aditi* (nature). As such the whole earth is one family (Ṛg. 1-191-6).[2]

Heaven is your Sire, your Mother Earth, Soma your brother, Aditi your Sister: seeing all unseen, keep still and dwell ye happily.

The whole earth is one family is synonym to the modern concept of Biosphere.

The development of the nature-ecosystem is a systematic process of evolution. The ecosystem develops under the principles of Ecological-succession. The principles of succession have been given in the hymns related with the Origin of life.

e. Modern Concept of Energy

The whole universe is filled with energy, there is only energy. At some places energy get condensed in as electrons,

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१. अदि॑ति॒र्द्यौरदि॑तिर॒न्तरि॑क्ष॒मदि॑तिर्मा॒ता स पि॒ता स पु॒त्रः।
विश्वे॑ दे॒वा अदि॑ति॒ः पञ्च॒ जना॒ अदि॑तिर्जा॒तमदि॑ति॒र्जनि॑त्वम्।।१०।।

२. द्यौर्वः॑ पि॒ता पृ॑थि॒वी मा॒ता सोमो॒ भ्रातादि॑ति॒ः स्वसा॑।
अदृ॑ष्टा॒ विश्व॑दृष्टा॒स्तिष्ठ॑ते॒लय॑ता॒ सु कम्।।६।।

protons and neutrons. They bind together to produce atoms, and atoms in turn bound in to the molecules that produce substances. To whom we can touch, feel and call it as mass energy. In Einstein's equation–

$E = mc^2$ it means energy and mass can be converted in to each other, where E– Energy, m– Mass and c– Velocity of light.

Our universe is a vast ocean of energy, where energy undergoes transformation. It follows the laws of thermodynamics. They state that energy is unborn and eternal. The energy can be converted from one form to another form with a successive loss of energy at every transfer. The energy can be defined as capacity to do work. The energy at rest is known as potential energy, the energy at work is known as kinetic energy. Within this framework all other forms of energy such as magnetic, electric, gravitational, heat and metabolic energy are working in the universe. The Laws of thermodynamics also state, when there is an increase it must be balanced by a decrease somewhere else. It means from energy point of view whole universe is a single unit we are only a small part of the same.

f. Vedic Concept

The Vedic *Yajña* is a symbolic representation of actions and inter actions going on in the nature in a cyclic manner (Ṛg. 1.164-50 & Ṛg. 10-90-16). Accordingly the whole creation is a *Sṛṣṭi Yajña*. The creation came in to the existence through the actions and interactions under a system. The Vedic seers have indicated it in the first hymn of Ṛg. 1-1-1

ॐ अ॒ग्निमी॑ळे पु॒रोहि॑तं य॒ज्ञस्य॑ दे॒वमृ॒त्विज॑म्। होता॑रं रत्न॒धात॑मम्॥१॥

I invoke the Agni- (fundamental energy) who is the Deva (fundamental particles), sacrificer, and reciter of the Sṛṣṭi, Yajña, which is the treasure of jewels,

It means every thing, which is present in the creation is due to the fundamental energy.

इन्द्रं॑ मि॒त्रं वरु॑णम॒ग्निमा॑हु॒रथो॑ दि॒व्यः स सु॑प॒र्णो ग॒रुत्मा॑न्।
एक॒ं सद्विप्रा॑ बहु॒धा व॑दन्त्य॒ग्निं य॒मं मा॑त॒रिश्वा॑नमाहुः॥

They call him Indra, Mitra, Varuṇa, Agni and he is heavenly nobly winged Garutman. To what is one, sages give many a title: they call it Agni, Yama, Mātariśvan. (Rig. 1-164-46)

It has been indicated that due to transformation of energy, the fundamental energy has different forms with different names.

The fundamental energy has been imagined metaphorically in the form of a *Puruṣa,* with innumerable head, eyes and feet, who pervades the earth and the world and even above and in ten finger wide space. It indicates that the fundamental energy- *Puruṣa* is omnipotent, omnipresent and eternal.

g. Laws of Thermodynamics in the Puruṣa sūkta

Puruṣa Sūkta is most important hymn of the whole Vedic literature, which symbolically reveals the secret of the creation. In the *Puruṣa sūkta* - fundamental energy has been described as the personal life giving principle, as well as the original source of the creation. He pervades the universe. Accordingly the integrity of the individual soul and *Brahma* has been established in the *Upaniṣads.*

The fundamental energy has been imagined in the form of a *Puruṣa* and the Vedic seers have described the origin and evolution of the creation from the same. The reciprocal interrelationship of the *Puruṣa* and the universe has been indicated in a symbolic fashion.

The Laws of Thermodynamics have been indicated in *Puruṣa sūkta* (Ṛg.10-90-1 to 4),

A thousand heads hath purusa, a thousand eyes, A thousand feet on every side pervading earth he fills a space ten finger wide. (Ṛg. 10-90-1)[1]

The fundamental energy has been metaphorically imagined in the form of a *Puruṣa* with innumerable head, eyes and feet. He pervades the earth and even above it. It indicates that fundamental energy is universally present every where.

This Puruṣa is all that yet hath been and that is to be;

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[१]. सहस्रशीर्षा पुरुषः सहस्राक्षः सहस्रपात्। स भूमिं विश्वतो वृत्वात्यतिष्ठद्दशाङ्गुलम्।।

The Lord of Immortality, which waxes greater still by food.

(Ṛg. 10-90-2)[1]

It has been indicated here that the Fundamental energy is eternal. It undergoes transformation, through which it increases, which is its food symbolically. The lord of immortality, it means it remains constant in all state and imperishable.

So mighty is his greatness; yea greater than this is Puruṣa. All creatures are one-fourth of him, three-fourths eternal life in heaven. (Ṛg.10-90-3)[2]

It has been said that the cosmos is like a vast ocean of fundamental energy. The visible world is only one-fourth part of it and the rest three fourth part of it is in the heaven above the visible world.

With three fourths Puruṣa went up: one fourth of him again was here. Thence he strode out to every side over what eats not and what eats. (Ṛg. 10-90-4)[3]

It has been said that the three fourth part of the fundamental energy is invisible in the heaven. Only the one fourth part of it is under going transformation again and again, which spreads on every side as animate and inanimate creation.

It has been indicated that the human body is a microcosm in side a macrocosm.

The creation is an integral system of complex processes within it. It develops gradually and reaches at its peak, through actions and interactions in a cyclic manner. The process of the creation ha been started from the fundamental energy. It has activated the formation of the charged particles. The same has been depicted as evolution from non existence to existence. It is the first germ of the creation. The fundamental particles

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१. पुरु॑ष ए॒वेदं सर्वं॑ यद्भू॒तं यच्च॒ भव्य॑म्। उ॒तामृ॑त॒त्वस्येशा॑नो॒ यदन्ने॑नाति॒रोह॑ति।।२।।

२. ए॒तावा॑नस्य महि॒मातो॒ ज्यायाँ॑श्च॒ पूरु॑षः।
पादो॑ऽस्य॒ विश्वा॑ भू॒तानि॑ त्रि॒पाद॑स्या॒मृतं॑ दि॒वि।।३।।

३. त्रि॒पादू॒र्ध्व उदै॒त्पुरु॑षः॒ पादो॑ऽस्ये॒हाभ॑व॒त्पुनः॑।
ततो॒ विष्व॒ङ् व्य॑क्रामत्साशनानश॒ने अ॒भि।

constitute the primeval nature. They have produced the atoms, molecules and the substances. The same has been depicted through the syllables in a symbolic fashion by *Eka-padī, Dvi-padī, Tripadī, Catuṣpadī, Gāyatrī, Triṣṭubh, Anuṣṭubh* and *Jagatī*.

She that was fourth set Agni-and-Soma; the seers arranging the (two) wings of the sacrifice- Gāyatrī, triṣṭubh, jagatī, anuṣṭubh, bṛhadarkī, bringing heaven (svar) for the sacrificer. (Atharvaveda 8.9.14)[1]

गा॒यत्रस्य॑ सु॒मिध॑स्ति॒स्र आ॑हु॒स्ततौ॑ म॒ह्ना प्र रि॑रिचे महि॒त्वा॥

Gāyatrī hath, they say, three bands for ḳindling: hence it excels in majesty and vigour. (Ath. 9-10-3)

तस्या॒ इन्द्रौ॑ व॒त्स आसी॑द् गा॒य॒त्र्य॒भि॒धान्य॒भ्रमूध॑ः॥

Of her the Indra (electricity) was young vatsa (son) and Gāyatrī the halter, cloud the udder (milk). (Ath. 8.10.2.5)

The creative power of the creation is in the three bands of *Gāyatrī. The Gāyatrī* has been identified as energy its three bands are electron, proton and neutron. *Soma* is father and *Indra* became his son, it means magnetic energy and electricity together generates electromagnetic bond energy, where magnetic energy is first, hence the *Soma* has been termed as father and *Indra* as son. They together produce atoms and the molecules. For the creation these three fundamental particles are having milk like nourishing power through the formation of atoms, it has been indicated.

सूर्य॑ आ॒त्मा जग॑तस्त॒स्थुष॑श्च॥

Sun is the eye and soul of the creation. (Ṛg.1-115-1)

It means what ever is going on in the creation is due to the sun. Now it is also a fact that sun is the main energy source in our solar system, further the Vedic seers says that the creative power of the sun is in the *Gāyatrī,* (Ath. 9-10-3 and 8-10-2 to 5).

It has been said that he drives the sun and other planets like a wheel of the chariot.

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१. अ॒ग्नीषोमा॑वदधु॒र्या तु॒रीयासी॑द् य॒ज्ञस्य॑ प॒क्षावृष॑यः क॒ल्पय॑न्तः।
गा॒य॒त्रीं त्रि॒ष्टुभं॒ जग॑तीमनु॒ष्टुभं॑ वृहदु॒र्कीं यज॑मानाय॒ स्व॒राभर॑न्तीम्॥ १४॥

स सूर्यः पर्युरू वरांस्येन्द्रो ववृत्याद्रथ्येव चक्रा।

(Ṛg.10-89-2)

He, throughout the wide expanses shall Indra turn him, swịft as car-wheels, hither.

It means that they are drawing attention towards a force. It is responsible for creativity of the sun and the force for the planetary movement of the solar system. The *Gāyatrī*- represents fundamental particles.

How the fundamental energy is working in the creation. It has been indicated through a reciprocal interrelation ship of father and the son in the form of a riddles.

This beautiful one (F) (is) unaging, an immortal in the house of a mortal; for whom she (was) made, he lies; he who made (her) grew old. (Ath. 10-8-26)[1]

The life energy has been described as beautiful, without aging and immortal. It has been indicated that with the reproductive capacity of the cells, the life energy became young through cell division and the old cells under go aging. (Ath. 10-8-26)

Both their father are also their son; both the chief are also the meanest (Kaniṣṭha) of them; the one god, who has entered in to the mind, born the first, and he within the womb. (Ath. 10-8-28)[2]

The fundamental energy generates first in the atoms and in the womb. It has been termed as first born. The fundamental magnetic energy, proliferate with the electrostatic energy of the nucleus as electromagnetic bond energy. They together have been termed as both the father and their son metaphorically. The electromagnetic energy is present in the universe and at the micro level it is present in the atoms. Hence it has been termed as chief as well as minute (*kaniṣṭha).*

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१. इयं कल्याण्य१जरा मर्त्यस्यामृता गृहे। यस्मै कृता शये स यश्चकार जजार सः॥

२. उतैषां पितोत वा पुत्र एषामुतैषां ज्ये उत वा कनि :।एको ह देवो मनसि प्रविष्टः प्रथमो जातः स उ गर्भे अन्तः॥

The full from the full he bends up (ud-ac); the full is poured with the full; also that may we know today, whence that is poured out.

(Ath. 10-8-29)[1]

It has been indicated that the fundamental energy is complete in it self and it remains constant in all the state. "Whence that is poured out" It means one should know when it has been generated first (Ath. 10-8-29). The answer has been given through the first born in the womb (centre). It means due to the movement of the electrons around the nucleus and due to the movement of the cytoplasm around the nucleus in a cell, it has been generated at its own first.

h. Cosmic Principles

The creation is working as a system under the cosmic principles. These principles have been given symbolically in the last two stanza of the *Puruṣa sūkta.*[2]

Seven fencing-sticks had he, thrice seven layers have been prepared, When the Gods, offering sacrifice, bound, as their victim, Puruṣa (Ṛg. 10-90-15).[3]

Here it has been expressed that the process of creation has been initiated, when fundamental particles get bind in an atom. Due to the spinning of the electrons around the nucleus fundamental magnetic energy generates in the atom. In this way the fundamental energy (*Puruṣa)* is bound in side the atom. It binds the atom through electromagnetic bond energy and accordingly the creation came in to the existence. For the functions of the creation seven sticks (seven planets), twenty-one fuel have been prepared, these twenty-one fuel represents twelve months, six seasons and the three weather (Hot, cold and the rainy season). Through which creation is working as a system, it

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१. पू॒र्णात् पू॒र्णमुद॑चति पू॒र्णं पू॒र्णेन॑ सिच्यते। उ॒तो तद॒द्य वि॒द्याम॒ यत॒स्तत् प॑रिषि॒च्यते॑॥

२. य॒ज्ञेन॑ य॒ज्ञम॑यजन्त दे॒वास्तानि॒ धर्मा॑णि प्रथ॒मान्या॑सन्।
ते ह॒ नाकं॑ महि॒मान॑: सचन्त॒ यत्र॒ पूर्वे॑ सा॒ध्याः सन्ति॑ दे॒वाः॥

३. स॒प्तास्या॑सन् परि॒धय॒स्त्रिः स॒प्त स॒मिध॑: कृ॒ताः।
दे॒वा यद्य॒ज्ञं त॑न्वा॒ना अब॑ध्न॒न्पुरु॑षं प॒शुम्॥

has three centre- sky, atmosphere and the earth as indicated by the three layers. In this way a picture of the creation system has been expressed symbolically.

Gods sacrificing sacrificed the victim: these were the earliest ordinances. The mighty ones attained height of heaven, there where the Sādhyas, Gods of old, are dwelling. (Ṛg. 10-90-16)

The *Yajña*-sacrifice means action and interactions. It has been said that from actions and interactions again actions and interactions generates. According to the cosmic law, *Deva*–fundamental particles are the first, with their activity they reach up to the height of matter and again reach to their state of the fundamental particles- *Deva*. It means initially the fundamental particles are the first in the series of action and interactions. Through their activity they synthesize the matter and with degradation again reach to their original old state of *Deva*–fundamental particle. It means the bio-geo-chemical cycle in the nature, through which the natural components under go synthesis and decomposition in the nature

i. Oxidation and Reduction

In the nature a number of chemical cyclic chain reactions are going on, due to these reactions a equilibrium is there in the ecosystem, in the nature only two reaction oxidation and reduction are playing their role in a sequence. Due to these two reactions the nature is working as a system, the same has been indicated in the creation hymn of the *Atharvaveda*.

In the *Atharvaveda* questions have been raised regarding the secret of creation, accordingly the answers have been given. It indicates about the nature of chemical and biochemical reaction in a symbolic fashion.

He who knows the golden reed vast standing in the sea- he verily is in secret Prajāpati. It means the person who knows the root cause of the creation, that how it has been sustained, he verily knows the secret Prajāpati. It means he has the knowledge of the fundamental energy.

त॒न्त्रमेके॑ युव॒ती विरू॑पे अभ्या॒क्रामं॑ वयत॒ः षण्मं॑यूखम्।

प्रान्या तन्तूंस्तिरते धत्ते अन्या नाप वृञ्जाते न गमातो अन्तम्॥४२॥

A certain pair of maidens, of diverse form, weave, betaking themselves to it, the six-pegged web; the one draws forth the threads tantu, the other sets [them] ; they wrest not off (apa-vṛj), they go not to an end.

(Atharva, 10-7-42)

How the creation has been sustained, the answer has been given in a symbolic fashion in the form of a maiden pair of diverse nature. It means the two fundamental reactions of the nature, which are going on alternately. These two are the oxidation and reduction reactions. In the living organisms they are known as the anabolism and catabolism. The anabolism is related with the reduction and synthesis of the complex substances, the catabolism is related with the oxidation and simplification of the complex substances. These two diverse types of reactions are operating universally in the universe simultaneously one after another. The synthesis and destruction is the law of nature, which through actions and interactions in all six directions weave a web, commonly known as food web in the nature. One weave it and other destroy it, it means anabolism and another draws forth the threads means catabolism. In this way these two reactions never reached to an end whether in the nature or in the living beings. The difference is only this that inside the living beings they are operating in the presence of enzymes, which lower down the energy of activation of the molecules and outside the cells, the molecules requires more energy for the activation. In this way this stanza reveals the fact that how the creation get sustained.

तयोरहं परिनृत्यन्त्योरिव न वि जानामि यतरा परस्तात्।
पुमानेनद् वयत्युद् गृणत्ति पुमानेनद् वि जभाराधि नाके॥४३॥

Of them, as of two women dancing about, I do not distinguish (vijna) which is beyond; a man (pumans), weaves it, ties [it] up; a man hath borne it about upon the firmament (naka).

(Ath. 10-7-43)

Here these reactions have been described as two dancing women. Out of two, which one is beyond is difficult to say but a

Puruṣa- fundamental energy weave it ties (it) up the same has spread it in the sky.

Here the Vedic seers have clear it further that no one can say that which reaction is first, because these two reactions operate simultaneously in nature. Further they have given indications through *puruṣa*- fundamental energy that the stability of the substances or matter is due to the *Puruṣa*-fundamental energy, it signifies the bond energy, which is responsible for the synthesis and degradation of the matter, who has spread up it in the sky and in all the directions,

इ॒मे म॒यूखा॒ उप॑ तस्तभु॒र्दिवं॒ सामा॑नि च॒क्रुस्तस॑राणि॒ वात॑वे॥४४॥

These pegs propped up the sky; the chants they made shuttles for weaving.

(Atharva 10-7-44)

It has been indicated here that these oxidation-reduction cycles have brought the creation in the existence. Where the substrates are the means for weaving the food webs and food chains in the nature, the *chants* represents the substrates.

j. Life on the Earth

In modern terminology the whole world is an ecosystem, in a balanced ecosystem all the components have their own importance, which emphasize the conservation of biodiversity in the nature. For life on the earth the presence of ozone layer in the upper atmosphere and earth's magnetic field and magnetosphere are equally important. All these facts have been indicated in the Vedic hymns.

The importance of the sun has been indicated by saying that the sun is the soul and eye of the creation, (Ṛg. 1-115-1).

Now, ye people, take knowledge, he will speak a great mystery (? Brahman); that is not on the earth, nor in the sky where by the plants breathe. Ath. 1-32-1[1]

It has been said that he will speak a great mystery about the

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१. इ॒दं जना॑सो वि॒दथं॑ म॒हद् ब्रह्म॑ वदिष्यति।
न तत् पृ॑थि॒व्यां नो दि॒वि येन॑ प्रा॒णन्ति॑ वी॒रुधः॑॥

plant respiration that is not on the earth, nor in the sky, where by the plants breathe. It means the factor responsible for the life and the respiration is some where else, although the oxygen is present in the atmosphere.

In the atmosphere is the station of them, as of those sitting wearied; the station of this that exists(bhūta): that the pious know or they do not. (Ath 1-32-2)[1]

The truth has been revealed by an indication about the presence of the ozone layer in the mid atmosphere by saying that atmosphere is the station of them, *as of those sitting wearied; the station of this that exists (bhūta):* It means the life is present on the earth due to the Ozone layer and the magnetosphere in the atmosphere, The atmosphere is the place of ozone layer in the atmosphere. It absorbs ultraviolet rays, due to which the earth has cordial atmosphere for life. (Athrvaveda 1-32-2)

What the (two) quaking firmaments (rodasi) and the earth- fashioned out, that at present is always wet, like the streams of Ocean. (Ath. 1-32- 3)[2]

What the two firmaments earth and sky has fashioned out, that the earth is always wet, like the streams of ocean.

In a symbolic fashion the question has been raised that how the earth and sky have came in to the existence? How they are getting continuous feed back like the streams of ocean?

It means due the presence of magnetosphere in the atmosphere, the processes within the magnetosphere feed the creation through the ions from the fundamental particles. It is a continuous process. It has been indicated symbolically by saying that *at present is always wet.*

One hath covered all, this rests upon the other both to the heaven and to the all- possessing earṭh have I paid homage. (Ath. 1-32-4)[3]

It has been indicated that the planets of the solar system are

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१. अ॒न्तरि॑क्ष आ॒सां॒ स्थाम॑ श्रान्त॒सदा॑मिव। आ॒स्थान॑म॒स्य भू॒तस्य॑ वि॒दुष्टद् वे॒धसो॒ न वा॑॥

२. यद् रोद॑सी॒ रेज॑माने॒ भूमि॑श्च निरत॑क्षतम्। आ॒र्द्रं तदुद्य स॑र्व॒दा स॑मु॒द्रस्ये॑व स्रो॒त्याः॥

३. विश्व॑म॒न्याम॑भीवार त॒दन्यस्या॒मधि॑श्रितम्। दि॒वे च॑ वि॒श्ववे॑दसे पृथि॒व्यै चा॑करं॒ नम॑ः॥

covered with the magnetic field and their existence in the solar system depends on their magnetic field, for their existence the planenets are dependent on each other. One hath covered all, it indicates about the interplanetary magnetic field.

The presence of Ozone layer in the atmosphere and magnetosphere aroud the earth has been indicated in the cosmogonic hymns also.

One of them clothes him self in this earth; one encompassed the atmosphere; he of them who is disposer (vidhartā) gives the sky; some defend respectively all regions. (Ath.10-8-36)[1]

The one who clothes himself in this earth is earth's magnetic field and one who encompassed the atmosphere is earth's magnetosphere, who protects the earth from the magnetic field of sun and other planets.

The same has been indicated in Ṛgveda, symbolically in *Asya-vāmīya Sūkta.*

He with Jagatī the flood in heaven he established, and saw the sun in the Rathantara Sāman.

Gāyatrī hath, they say, three bands for kindling: hence it excels in majesty and vigour. Ṛg. 1-164- 25.

The *Jagatī* is the place in the atmospheric ocean, where the high energetic solar winds are trapped by the earth's magnetosphere, (the *Gāyatrī's* three bands are three fundamental particles) where the three fundamental particles- electron, proton and neutron are get converted in to the ions, hence it excels in majesty and vigour. (Ṛg. 1-164-25)[2]

"Dyaus (sky) is my father, my begetter; kinship is here. This great earth is my kin and mother.

Between the wide spread world halves is my birthplace: the father laid the Daughter's germ within it.

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[1] इ॒मामे॑षां पृ॒थि॒वीं वस्त॒ एको॒ऽन्तरि॑क्षं॒ पर्ये॑को॑ बभूव। दिव॑मेषां ददते॒ यो वि॑ध॒र्ता विश्वा॒ आशा॒ः प्रति॑ रक्षन्त्येके॑॥

[2] जग॑ता॒ सिन्धुं॑ दि॒व्य॑स्तभायद्रथन्त॒रे सूर्यं॑ पर्य॑पश्यत्।
गा॒य॒त्रस्य॑ स॒मिध॑स्ति॒स्र आ॑हु॒स्ततो॑ म॒ह्ना प्र रि॑रिचे महि॒त्वा॥

The truth has been explained through the mouth of the life in an anthropomorphic manner symbolically." The sun in the sky is my father, who is the cause of life, earth is my mother, who nourish me and my birth place is in between the world halves, (where ozone layer absorbs the toxic ultra violet rays)". (Ṛg.1-164-33)[1]

It indicates that after knowing the facts behind life on the earth, the Vedic seers have incorporated them in the Vedic hymns and emphasize to maintain harmony with the nature and the natural components

In the creation hymns of *Athervaveda*, the Vedic seers have indicated about the global warming in the hymn (10-8-), where the fundamental energy has been described as *Skambh-* frame of the creation. Accordingly the questions have been raised regarding the supporter and regulator of the creation. The fundamental energy has been described as supporter, regulator and supporter of the creation, from whom the creation came in to the existence. He regulates the creation through oxidation and reduction reactions in the nature (Ath. 10-7-42,43,44). As a golden embryo, he is omnipotent and omnipresent, he sustain heaven and earth, he stood in the midst of creation as *Yakṣa,* all are set in him like the branches of a tree,

A great monster'(yakṣa) in the midst of the creation(bhuvana) strode? (krānta) in penace on the back of the sea- in it are set(cri) whatever gods there are like the branches of a tree roundabout the trunk. (Ath. 10-7-38)[2]

It has been indicated through the metaphor of a tree, that all the components of the nature have been evolved from a single energy, all are linked with him like the branches of a tree, he is in the middle of the creation, it indicates about the omnipotent nature of the fundamental energy.

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१. द्यौर्मे पिता जनिता नाभिरत्र बन्धुर्मे माता पृथिवी महीयम्।
उत्तानयोश्चम्वोर् योनिरन्तरत्रा पिता दुहितुर्गर्भमाधात्॥

२. महद् यक्षं भुवनस्य मध्ये तपसि क्रान्तं सलिलस्य पृष्ठे।
तस्मिञ्छ्रयन्ते य उ के च देवा वृक्षस्य स्कन्धः परित इव शाखाः॥

k. Global warming

Global warming is a modern threat for existence of life on the earth, it seems that the earth may have faced this situation earlier too as indicated in the *Atharvaveda* in a lucid manner (Ath.10-8-).

यद॑न्त॒रा द्यावा॑पृथि॒वी अ॒ग्निरैत् प्र॒दह॑न् विश्वदा॒व्य॒ः।
यत्राति॑ न्नेक॑पत्नीः पु॒रस्ता॒त् क्वे॒ वासीन्मात॒रिश्वा॑ त॒दानी॑म्॥ ३९॥

As between heaven-and earth Agni went, burning on, all-consuming, where stood beyond they of one husband- where perchance was mātariśvan then

(Ath. 10-8-39)

अ॒प्स्वा॒ सीन्मात॒रिश्वा॒ प्रवि॑ष्ट॒ः प्रवि॑ष्टा दे॒वाः स॑लि॒लान्या॑सन्।
बृ॒हन् ह॑ तस्थौ॒ रज॑सो वि॒मान॒ः पव॑मानो ह॒रित॒ आ वि॑वेश॥ ४०॥

Mātariśvan was entered into the waters; the gods were entered into the seas; great stood the traverser of space; the purifying one entered into the green ones.

(Ath. 10-8-40)

The Vedic seers have drawn the picture of the global warming. It has been indicated that during the period when in between earth and heaven fire go on burning and consuming all. It means due to the global warming, earth and heaven will have no difference. Looking to this a question has been asked? If such a condition will be there, in that condition where will be the lord of heaven and earth (fundamental energy)? Where will be the *Mātariśvan* (CO_2)?

It has been indicated here that the lord of heaven and earth (fundamental energy) will be in the mid of space and *Mātariśvan* will enter into the water. It means it will be in the dissolved condition, the natural forces will remain in the ocean of the sky. The purifying one will enter in to the green one. It suggests that air purifier (chlorophyll) will be in the dormant condition. As we know that during unfavourable conditions the prokaryotes can form the cyst, they reproduce with the return of favourable conditions. As such after catastrophe the process of evolution will again start similarly as before, with the power of *Gāyatrī*-fundamental particles (electron, proton and neutron). *The Gāyatrī* has been described as immortal- *Amṛta*. The seer who has the knowledge about the synthesis of the substances, he can explain about the unseen fundamental bond energy, which bind the atoms.

उत्त॑रेणेव गाय॒त्रीम॒मृतेऽधि॒ वि च॑क्रमे।
साम्ना॒ ये साम॑ संवि॒दुर॒जस्तद् द॑दृशे॒ क्व॒॥४१॥

Higher, as it were, than the gāyatrī, upon the immortal (amṛta) he strode out; they who knows completely chant with chant-where then was seen the unborn one (aja). (Ath. 10-8-41)

As we know that during unfavourable conditions the prokaryotes can form the cyst, they reproduce with the return of favourable conditions. As such after catastrophe the process of evolution will start again as before with the power of Gāyatrī-fundamental particles (electron, proton and neutron). The Gāyatrī has been described as immortal- *Amṛta*. The seer who has the knowledge about the synthesis of the substances, he can explain about the unseen fundamental-bond energy, it means they are drawing attention towards the bond energy.

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1. Cell Biology– Race of Ṛbhus

Life on the earth is a chemical synthetic process of evolution A.I. Oparin (1922).[1]

a. Introduction

Energy transformation, growth and reproduction are the fundamental principles of life. They are common from the unicellular to multicellular organisms. All the life forms consist of cells and get originate from the pre-existing cells only. They maintain their continuity through cell division. They shows continuity of life principle, which became complex with the evolution. With the acceptance of the view that all the life forms have been originated from the pre-existing cells only. It has given the importance to the quest as and when the first life has originated on the earth.

The various forms of the living beings are due to the difference in the base sequence of DNA (De-oxy ribose Nucleic Acid) and the number of the nucleotides in it. Otherwise all living beings have the DNA as genetic material, which carries the hereditary characters from parents to the off-springs. The people of Vedic culture were fully acquainted with these facts about the life. They have described them in their own way in the Vedic hymns.

About the origin of life, there are direct evidences in the Veda, they have indicated about the process of evolution, through which the creation came in to the existence under space-time relationship.

The origin of life has been explained metaphorically in an anthropomorphic manner. They have revealed the fact that life on the earth has been generated through the process of chemical evolution, The first cell has been synthesized in the water, the same has been termed as celestial race under the name of *Ṛbhu*, from which the world of living beings came in to the existence.

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[1] It is not an end of the problem but it opens a door for further research pertaining to the cycle of rebirth and death.

With the synthesis of first living cell, how the system became self-sufficient and self regulated with the evolution, it has been explained through conversation in a symbolic fashion metaphorically.

b. Origin of Life

Modern researches in the field of origin of life have demonstrated the a-biotic formation of organic substances in the early pre-biological history of the earth A.I.Oparin (1922), J.B.S. Haldane (1928) and Bungen Burg de Jong (1929), they have suggested that in the primitive conditions, coaservates may get produced, as and when two hydrophilic colloidal solutions carrying opposite charges are being mixed, the same has been expressed here. (Ṛg.1-122-2)

A.I.Oparin (1968) has also suggested that photosynthetic activity can be promoted, when porphyrin is incorporated in the coaservates, this fact has been indicated by the metaphor '*cow from the skin*' in a symbolic manner.

Vedic knowledge on the *Ṛbhu* (Cell) is the testimony of the modern researches in the field of origin of life. Hence looking to its importance the hymns related with the *Ṛbhu* (cell) have been quoted here as references about *Ṛbhu* (cell) and *Tvaṣṭā* (DNA). They have been given at various places in the *Ṛgveda*.

The importance of the cell-*Ṛbhu* for the living-beings is a fact, which has been expressed in a anthropomorphic manner and the thoughts have been woven to the form of praise prayers. They reveal the secret about the working skill of *Ṛbhu*-cell in the nature.

The first cell has been synthesized in the seawater and has been termed as *Ṛbhu,* which has been expressed in this verse

1. What time, first springing in to life, thou neighedst, proceeding from the sea or upper waters,

Limbs of the deer hadst thou, and eagle pinions, O steed, thy birth is high and must be louded.

It has been asked that at what time the *Ṛbhu* has sprang in to life, the answer has been given that life has originated first in sea or in upper water. The life energy is having a speed like an eagle or Deer. The birth of life is very high, it must be louded.

2. This steed which, Yama gave hath Trita harnessed, and him, the first of all, hath Indra mounted.

His bridle the Gandharva grasped. O Vasus, from out the Sun ye fashioned forth the Courser.[1]

It has been expressed that the Steed of life is *Trita* harnessed, which has been given by *Yama*, it is an indication towards the three stages of life- childhood, young and old age. The *Yama* represents chromosome, the chromosomes have the information for the development of the physical body, as such it has been said that it has been given by *Yama*, the life has been first mounted by *Indra. The Indra* represents electricity, in the early stages due to the movements of the charged particles in the developing coaservates, the life energy has been generated, hence it has been said that *Indra* has mounted first. It has been grasped by *Gandharva* as bridle, the *Gandharva* represents viscous mass of protoplasm, due to the streaming movements of the protoplasm life energy has its existence in the cell, when streaming get blocked, the life energy disappear, hence it has been said that the life energy has been grasped by the *Gandharva* as bridle, where bridle is metaphor for the life energy. *O Vasus*, it is an expression for the a-biotic substances, which have synthesized the *Ṛbhu*- cell in the water first, The sun is the main energy source on the earth, hence it has been said that the Courser- the cell has been fashioned by the sun.

3. Yama art thou, O horse; thou art Āditya; Trita art thou by secret operation.

Thou art divided thoroughly from Soma. They say thou hast three bonds in heaven that hold thee.[1]

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१. यदक्रन्दः प्रथमं जायमान उद्यन्त्समुद्रादुत वा पुरीषात्।
श्येनस्य पक्षा हरिणस्य बाहू उपस्तुत्यं महि जातं ते अर्वन्।।
यमेन दत्तं त्रित एनमायुनगिन्द्र एणं प्रथमो अध्यतिष्ठत्।
गन्धर्वो अस्य रशनामगृभ्णात्सूरादश्वं वसवो निरतष्ट।। १-१६३-१ & २

Yama art thou, O horse; thou art Āditya; Trita art thou Ṛbhu-cell in *by secret operation.* Due to the vigorous nature of the the nature, the *Ṛbhu* has been called as Steed metaphorically. It takes part in the creation sacrifice, it came in to the existence from the *Yama*-chromosome and due to the twelve *Āditya*-twelve months under temperature pressure gradient, hence it has been said that thou art *Yama*, thou art *Āditya, Trita* art thou by secret operation, it indicates about the synthesis of *Ṛbhu*-cell due to the Triple bond of the nucleotide pairs of the DNA. The genetic material, DNA has the information for the synthesis of the cell body. It bears the hereditary characters to synthesize the cell in nature.

Thou art divided thoroughly from Soma it means the whole synthesis is due to the *Soma*- magnetic energy, they say thou hast three bonds in heaven, which hold thee, it means Ozone layer (O_3) in the atmosphere, which absorbs the ultra violet Rays and due to which life is present on the earth.

4. Three bonds, they say, thou hast in heaven that bind thee, three in the waters, three within the ocean.

To me thou seemest Varuṇa, O Courser there where they say is thy sublimate birth place.[2]

It has been expressed that *Ṛbhu*-cell has three bonds in heaven, it represents ozone layer in the atmosphere, due to the presence of Ozone layer in the upper atmosphere life is present on the earth, because the Ozone layer (O_3) absorbs the high energetic Ultraviolet Rays, and only visible light come on the earth's surface, three bonds in the water. It means two bonds of hydrogen and a single bond of oxygen, which form the water, the water is a life resource for the *Ṛbhu*-cell. Three bonds within the ocean, it means in the ocean of life, the *Trita* Triple bond of the

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१ असि॑ य॒मो अस्या॑दि॒त्यो अ॑र्व॒न्नसि॑ त्रि॒तो गुह्ये॑न व्र॒तेन॑। असि॒ सोमे॑न स॒मया॒ विपृ॑क्त आ॒हुस्ते॒ त्रीणि॑ दि॒वि बन्ध॑नानि॥३॥

२. त्रीणि॑ त आहुर्दि॒वि बन्ध॑नानि॒ त्रीण्य॒प्सु त्रीण्य॒न्तः स॑मु॒द्रे।
उ॒तेव॑ मे वरु॑णश्छन्त्स्यर्व॒न्यत्रा॑ त आ॒हुः प॑र॒मं ज॒नित्र॑म्॥

nucleotide pair on the DNA strips is main source of the development.

To me thou seemest Varuṇa, the Ṛbhu seems like Varun, it indicates that the cellular mass came in to the existence due to gravity and aggregation of the materialistic substances as a sublimate unit. In this unit the Courser- life energy has its birth place. It suggests that after the aggregation of the materialistic substances in the viscous mass, due to the streaming movements of the mass, the life energy as Courser has its birth.

c. Origin of the Prokaryotic Cell

1. For the celestial Race this song of praise which gives wealth lavishly. (Ṛg.1-20-1)

The celestial race, the *Ṛbhu-cell* has been praised as the divine class or race of the *Ṛbhus*, the three sons of *Sudhanvan*- developing coaservates, they are said to be the descendant of *Angirasa* Viscous sap. They have been named severally *Ṛbhu*, eldest- Mature Cell, *Vibhvan- vigrous*, and *Vāja* is youngest (Young Cell). They are collectively called as *Ṛbhus* from the name of *Ṛbhu* due to their skillful good work for the living-beings, they have been considered as divine race.

Ṛbhu represents a mature cell, once a matured cell get synthesized in the nature it can maintain its continuity through the cell division. Accordingly at the cellular level all the living organisms exhibit same functions in the nature. Hence the *Ṛbhu* has been described as the celestial race.[1]

2. They who for Indra, *with their mind formed horses harnessed by a word. Attained by works to sacrifice.*[2]

How the *Ṛbhu*-cell initially came in to the existence, it has been indicated symbolically through mind and word, which signifies the rapid movements of the charged particles, which generate the sound and the vibrating sound energy grasped by the

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[1] From the Sudhanvan- (Coaservates), the different Ṛbhus-cells came in to being, as we know today that prokarotes are first in the series, the same has been explained. (Rg. 1-20)

२. य इन्द्राय वचोयुजा ततक्षुर्मनसा हरी। शमीभिर्यज्ञमाशत ।।२

Indra-electrostatic energy. Hence it has been said that the *Ṛbhu* with their mind formed horses harnessed by the *Indra.*

Which take part in the sacrifice-*Yajña*– the actions and interactions, through the series of actions and interactions. Accordingly the well developed cell came in to the existence at its own.

Through mind and word, the appearance of the coaservate drops as closed primitive system. It has been indicated metaphorically. Where the *Indra*– Electrical charge is the first, who has appeared with its +ive and –ive charges, it has been indicated by the horses harnessed. It has given the place for movements of the charged particles for sacrifice-actions and interactions.

3. They for the two Nāsatyas wrought a light rolling car moving every way: They formed a nectar yielding cow.[1]

They- the coaservate drops showing movements like a lightly rolling car for the two *Nāsatyas*. The two *Nāsatyas* represent oxidation and reduction reactions in the early primitive condition inside a closed system with energy transformation. They have given the feed back to the developing *sudhanvan*-coaservates. The same has been expressed symbolically as nectar yielding cow.

(The two *Nāsatyas* is a name of a *Aswin*- wonder workers and other is *Dasra*-wonder worker as destroyer, they are considered as the horse of the *Indra and Aśvins*- nucleotide pairs of the DNA, it means the activity of the DNA is enhanced by oxidation and reduction reactions.)

4. The Ṛbhus *with effectual prayers, honest, with constant labour made. Their Sire and Mother young again.*[2]

Accordingly the process of synthesis has been started. The two *Nāsatyas*- two reactions oxidation and reduction, with the continuous energy transformation, the developing coaservates

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१. तक्ष॒न्नास॑त्याभ्यां॒ परि॑ज्मानं सु॒खं रथ॑म्। तक्ष॑न्धे॒नुं स॑ब॒र्दुघा॑म्।।३

२. युवा॑ना पितरा पुन॑: सत्यम॑न्त्रा ऋजूयव॑:। ऋभवो॑ विष्ट्य॑क्रत।।४

acquired the the capacity for division, the same has been indicated metaphorically by with constant labour made their Sire and Mother young again.

5. Together came your gladdening drops with Indra by the Maruts girt. With the Ādityas, with the Kings.

Accordingly with time under natural conditions aging appear with the charged activities of *Indra*-Elctricity, water and *Ādityas*-(twelve month). The appearance of aging reveals the fact that together with Indra, water and time the coaservate under go aging.

It indicates about the beginning of the prokaryotic cell in the nature.

6. The sacrifice ladle, wrought newly by the God Tvaṣṭā's hand(DNA)– Four ladles have ye made thereof.[1]

The sacrificial ladles (developing cell) was made new by *Tvaṣṭā*- Genetic material, it means first genetic material has been synthesized in side the cell. It has given the capacity for cell division during the primitive anaerobic conditions and in turn the cell has been divided in to four.

7. Vouchsafe us wealth, to him who pours thrice seven libations, ye to each. Give wealth, pleased with our eulogies.[2]

Accordingly with time thrice seven fuels, which are five major elements, twelve *Āditya* (twelve months), three layers (sky, atmosphere and earth) and life energy; they operate for the safety of the prokaryotic cell.

8. As ministering Priests they held, by pious acts they won themselves. A share in sacrifice with Gods.[3]

It means with the formation of the prokaryotic cell in the nature, the *Ṛbhus*- cells became the source of nutrients along with natural forces. Accordingly the function of *Ṛbhus* is just like priest in the creation sacrifice.

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१ उ॒त त्यं च॑म॒सं न॒वं त्वष्टु॑र्दे॒वस्य॒ निष्कृ॑तम्। अक॑र्त च॒तुर॒ः पुन॑ः।६

२ ते नो॒ रत्ना॑नि धत्तन॒ त्रिरा साप्ता॑नि सुन्व॒ते। एक॑मेकं सुश॒स्तिभि॑ः।।७।।

३. अधा॑रयन्त॒ वह्न॒योऽभ॑जन्त सुकृ॒त्यया॑। भागं दे॒वेषु॑ य॒ज्ञिय॑म्।।८।।

In this fashion the process of evolution being initiated with the formation of a prokaryotic cell and cell division.

d. Development of Autotrophic Ṛbhu-cell

The holy work I wrought before is wrought again: my sweetest hymn is sung to celebrate your praise. Here, O ye Ṛbhus, *is this sea for all the Gods: sate you with Soma offered with the hallowing word.*[1] (Rg. 1-CX-1)

The *Ṛbhus* (cells) have been praised for their work and it has been said "O ye *Ṛbhus, is this sea for all the Gods"*, it means for the natural forces the space in the cell is just like a vast ocean for their activity, which acts with the generation of magnetic life energy. The *Soma* represents magnetic life energy, which is being generated within the cell due to the movements of electrons in side a closed system and due to the streaming of protoplasm in the cell. The same is the symbol of life in a cell, where natural metabolic reactions sate the cell with their activities.

2. When seeking your enjoyment onward from a far, ye came unto the home of liberal Savitā.[2]

During the evolution of *Ṛbhu-* coaservates at a certain stage, formation of the enzymes was there, it has been expressed by the term *Savitā*-stimulator.

3. Savitā *gave you immortality, because ye came proclaiming him whom naught can hide. And this the drinking- chalice of the Asura, which till that time was one, ye made to be fourfold.*[3]

Savitā– stimulator, it means the enzymes have given immortal nature to the *Ṛbhu* cell through the stabilization of the metabolic reactions and the cell became mature. It has given them the capacity for cell division in turn the cells have got immortality under natural conditions. It means once the life energy has been generated in its full form, it maintain its

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१. उत्तिष्ठ ब्रह्मणस्पते देवयन्तस्त्वेमहे। उप प्र यन्तु मरुतः सुदानव इन्द्र प्राशूर्भवा सचा।।

२ त्वामिद्धि सहसस्पुत्र मर्त्य उपब्रूते धने हिते। सुवीर्यं मरुत आ स्वश्व्यं दधीत यो व आचके।।२।।

३ प्रैतु ब्रह्मणस्पतिः प्र देव्येतु सूनृता। अच्छा वीरं नर्यं पङ्क्तिराधसं देवा यज्ञं नयन्तु नः।।३।

continuity through cell division in a fourfold manner. The same has been expressed as *Ye came proclaiming him whom naught can hide.* The drinking chalice of *Asura-* It means the developing a-biotic single co-aservate has increased in fourfold manner due to the cell division.

*4. When they had served with zeal at sacrifice as priests, they mortal as they were, gained immortality. T*he Ṛbhus, *children of* Sudhanvan, *bright as suns were in a year's course made associate with prayers.*[1]

It has been indicated that with their continuous functions just like priest, the mortal prokaryotes became immortal. The *Ṛbhus-* which have been developed from the coaservates, they have been termed as children of *Sudhanvan.* They were having bright shining colour like sun, they have gained immortality after one year's course with constant functions.

5. The Ṛbhus, *with a rod measured, as 'twere a field, the single sacrificial chalice wide of mouth.*[2]

The Ṛbhus- have selected a chalice wide of mouth in order for the cell division, the wide mouth is a metaphor for consuming food, which indicates that the youngest cell *Vāja* exhibits metabolism at its maximum, they are selected for the cell division.

6. As oil in ladles, we through knowledge will present un to the Heroes of the firmament our hymn.,— The Ṛbhus *who came near with this great Father's speed, and rose to heaven's high sphere to eat the strengthening food.*[3]

With a little knowledge of it we praise the heroes of the firmament *Ṛbhu,* who rose to heaven's high sphere to consume the food material. It means single chalice, which was developed initially spread in all the directions. During the evolution, they have developed internal mode of nutrition under anaerobic conditions.

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[1] १. यो वा॒घते॒ ददा॑ति सू॒नरं॒ वसु॒ स ध॑त्ते॒ अक्षि॑ति॒ श्रवः॑।
तस्मा॒ इळां॑ सु॒वीरा॒मा यजामहे सु॒प्रतू॑र्तिमने॒हस॑म्।।४।।

[2] २ प्र नू॒नं ब्रह्म॑ण॒स्पति॒र्मन्त्रं॑ वदत्यु॒क्थ्य॑म्।
यस्मि॒न्निन्द्रो॒ वरु॑णो मि॒त्रो अ॑र्य॒मा दे॒वा ओकां॑सि चक्रि॒रे।।५।।

[3] ३ तमिद्वो॑चेमा वि॒दथे॑षु श॒म्भुवं॒ मन्त्रं॑ देवा अने॒हस॑म्।
इ॒मां च॒ वाचं॑ प्रति॒हर्य॑था नरो विश्वेद्वा॒मा वो॑ अश्नवत्।।६।।

7. Ṛbhu to us is Indra freshest in his might, Ṛbhu with powers and wealth is giver of rich gifts. Gods, through your favor may we on the happy day quell the attacks of those who pour no offerings forth.[1]

They provide fresh energy, which is a gift of nature. It means the Ṛbhus-cells are having power of energy transformation and exchange of gases. It is a great gift of *Ṛbhus* through natural forces for the livingbeings.

8. Out of skin, O Ṛbhus, *once ye formed a cow, and brought the mother close unto her calf again. Sons of* Sudhanvan, *Heroes, with surpassing skill ye made your aged parents youthful as before.*[2]

The synthesis of chlorophyll from the outer wall of the cell has been indicated by saying "out of skin *they formed a cow, and brought the mother close unto her calf again,*" the cow is a symbol of nourishment It means with the development of autotrophic nature and cell division, the aging cells became young. It has been indicated by "*Ṛbhus, Ye made your aged parents youthful as before.*" the daughter cells have been termed as young parents.

Working with skill they wrought the lightly rolling car: they wrought the Bays (two charges) who bear Indra and bring great gifts.

The Ṛbhus for their parents made life young again; and fashioned for the calf a mother by its side. (Ṛg. 1-cxi-1)

The streaming movement of the charged particles has been indicated by lightly rolling car, which is a gift of nature. The electrical charges have been expressed through the bays of *Indra.*

[१.] को दे॑व॒यन्त॑मश्नव॒ज्जनं॒ को वृ॒क्तब॑र्हिषम्।
प्रप्र॑ दा॒श्वान्प॒स्त्या॑भिरस्थितान्त॒र्वा॑व॒त्क्षयं॑ दधे।।७।।

[२] उप॑ क्ष॒त्रं पृ॑ञ्ची॒त हन्ति॒ राज॑भिर्भ॒ये चि॑त्सुक्षि॒तिं द॑धे।
नास्य॑ व॒र्ता न त॑रु॒ता म॑हाध॒ने नार्भे॑ अस्ति व॒ज्रिणः॑।।८।।

The Ṛbhus for their parents made life young again; and fashioned for the calf a mother by its side.

In the next stanza it has been said that "*The Ṛbhus for their parents made life young again; and fashioned for the calf a mother by its side*", the developing cells have been mentioned here as calf and its mother is a symbolic expression for the nourishment with photosynthesis or chemosynthesis. It indicates about the energy transformation in the primitive conditions, in turn the *Ṛbhus* (cells) have acquired longevity in the nature. (Ṛg. 1-cxi-1)[1]

These sons of yours (Ṛbhus) well skilled in work of wondrous power, brought forth to life the two great mothers first of all.

To keep the truth of all that stands and all that moves, ye guard the station of your sons who knows know guile.

Here it has been indicated by the Vedic seers that during the evolution of life on the earth. The *Ṛbhus* (Cells) have acquired life through their skill of work, "*brought the two great mothers first of all*" it means two reactions oxidation and reduction, which acts as two mother for the functions of the nature. They are the symbol of truth, it means through them the nature is working as system. Hence they have been termed as two mothers. They regulates and feed the system through their products

4. They with surpassing skill, most wise, have measured out the Twins united in their birth and in their home.

They refulgent Sages weave within the sky, ye in the depths of sea, a web for ever new. (Ṛg.1-CLIX-3&4)

ते सू॒नवः॒ स्वप॑सः सु॒दंस॑सो म॒ही ज॑ज्ञुर्मा॒तरा॑ पू॒र्वचि॑त्तये।
स्था॒तुश्च॑ स॒त्यं जग॑तश्च॒ धर्म॑णि पु॒त्रस्य॑ पाथः प॒दमद्व॑याविनः॥३॥
ते मा॒यिनो॑ ममिरे सु॒प्रचे॑तसो जा॒मी सयो॑नी मिथु॒ना समो॑कसा।
नव्यं॑नव्यं॒ तन्तु॒मा त॑न्वते दि॒वि स॑मु॒द्रे अ॒न्तः क॒वयः॑ सु॒दीत॑यः॥४॥

The twins united in their birth are strips of DNA, which weave food webs and food chains, which is for ever new.

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[१] यं रक्ष॑न्ति प्रचे॑तसो वरु॑णो मि॒त्रो अ॑र्य॒मा। नू चि॒त्स द॑भ्यते॒ जनः॑॥१॥

With their skill they have synthesized a pair of twins united in their birth, it means the two strips of DNA. Which have brought the food webs and food chains in the sky and in the sea (world of living beings), which is always new.

It has been indicated here that the whole world of living beings have came in to the existence from the genetic material DNA, which is a double helical structure. The same is responsible for the formation of food webs and food chains in the nature.

e. Development of Eukaryotioc Ṛbhu-cell

The Eukaryotic *Ṛbhu–* cell and its functions in the nature have been expressed in another hymn, where energy transformation has been praised

किमु श्रेष्ठः किं यविंष्ठो न आजंगन्किमीयते दूत्यं१ कद्यदूचिम।
न निंन्दिम चमसं यो मंहाकुलोऽग्ने भ्रातर्द्रुण इद्भूतिमूंदिम।।१।।

Why hath the Best, why hath the Youngest come to us? Upon what embassy comes he ? What have we said ?

We have not blamed the chalice of illustrious birth, we, Brother Agni, praised the godess of the wood.

Why hath the Best, why hath the Youngest come to us? The symbolic conversation of Agni and Ṛbhu reveals the fact that youngest cell Vāja take part in the cell division and agni-chemical energy has been praised.

2. The chalice that is single make ye in to four : thus have the Gods commanded; therefore am I come .

If O Sudhanvan's *Children, ye will do this thing, ye shall participate in sacrifice with Gods.*

एकं चमसं चतुरंः कृणोतन तद्वों देवा अंब्रुवन्तद्व आगंमम्।
सौधंन्वना यद्येवा कंरिष्यथं साकं देवैर्यज्ञियांसो भविष्यथ।।२।।

The *Agni* said that with the cell division, *Ṛbhus* ye made four *chalice* from a single chalice and in turn you are in command of the natural forces. *The sudhanvan's children– Ṛbhus*, you will participate in the creation sacrifice with other natural forces. It means the *Ṛbhus–* cells or the cellular organisms have important functional role in the nature, along with the natural components.

It has been indicated that through the energy transformation the developing cells have acquired the capacity for the division. The natural forces have influenced the further development of the cell. Accordingly with the actions and interactions, they became the part of the nature.

अ॒ग्निं दू॒तं प्रति॒ यदब्र॑वीत॒नाश्वः॒ कर्त्वो॒ रथ॑ उ॒तेह कर्त्वः॑।
धे॒नुः कर्त्वा॑ युव॒शा कर्त्वा॒ द्वा तानि॑ भ्रात॒रनु॑ वः कृ॒त्व्येम॑सि॥३॥

What to the envoy Agni *in reply ye spoke, A courser must be made, a chariot fashioned here, A cow must be created, and the Twain made young. When we have done these things, brother, we turn to you.*

In reply to *Agni the Ṛbhu* said that A courser must be made for the chariot-cell, which has been fashioned here. *For its nourishment a cow is must and the Twain made young, we have done this and than we-Ṛbhu came to you.*

The *Ṛbhu*-cell has been designated as chariot. For its easy run a need of a courser has been expressed, the courser is life energy. The cow is a symbolic expression for the nourishment. The *Twain* represents genetic material with two helix, it has been expressed as *Tvaṣṭā*, in the next verse.

च॒कृ॒वांस॑ ऋभव॒स्तद॑पृच्छत॒ क्वेद॑भू॒द्यः स्य दू॒तो न॒ आज॑गन्।
य॒दावा॒ख्य॑च्चम॒सा॒ञ्चतुरः॑ कृ॒तानादित्त्वष्टा॒ ग्नास्व॒न्तर्न्या॑नजे॥४॥

4. When thus O Ṛbhus, *ye had done ye questioned thus Whither went he who came to us a messenger?*

Then Tvaṣṭā, *when he viewed the four wrought chalices, concealed him self among the Consorts of the Gods.*

The Agni said that *Ṛbhus*, when you have done all this, you have raised a question about the messenger. Than the *Tvaṣṭā*, who has viewed the four developing chalice, He himself concealed among the natural Consorts.

It has been expressed that *Tvaṣṭā*– DNA, genetic material is acting as the messenger. It carries the hereditary characters from one generation to another generation. The courser of the cell is life energy. The messenger is DNA, who carries the message from one generation to another generation. It has been expressed that as soon as the cell has divided into four, the *Tvaṣṭā* (DNA), concealed him self in to the consorts of the gods (natural components). It means DNA has disappeared with the formation of the new cells.

In the nature, the genetic material is visible at the time of cell division and it disappears with the formation of the young cells. The same has been expressed.

हना॑मैना॒ँ इ॒ति त्वष्टा॒ यदब्र॑वीच्चम॒सं ये दे॑व॒पान॒मनि॑न्दिषुः।
अ॒न्या नामा॑नि कृण्वते सु॒ते सचाँ॑ अ॒न्यैरे॑ना॒न्क॒न्या॒३ नाम॑भिः स्परत्।।५।।

5. As Tvaṣṭā *thus had spoken, let us slay these men who have reviled chalice, drinking cup of gods. They gave themselves new names when Soma juice was shed, and under these new names the Maiden welcomed them.*

In the nature after the cell division, the parent cell lost their identity and young cells take over their functions in a new form. Hence it has been indicated by saying *"let us slay these men, who reviled the chalice (parent cells)"* and *Ṛbhu-* cells made their parents young again with the new names. The Maiden-DNA strips welcome the newly formed cells with the generation of life energy. It has been indicated by saying, when *Soma* juice was shed.

इन्द्रो॒ हरी॑ युयु॒जे अ॒श्विना॒ रथं॒ बृ॒हस्पति॑र्वि॒श्वरू॑पा॒मुपा॑जत।
ऋ॒भुर्विभ्वा॒ वाजो॑ दे॒वाँ अ॑गच्छत॒ स्वप॑सो य॒ज्ञियं॑ भा॒गमै॑तन।।६।।

Indra hath yoked his Bays, the Aśvin's car is horsed, Bṛhaspati hath brought the Cow of every hue. Ye went as Ṛbhu, Vibhvan, Vāja to the Gods.

For the further evolution *Bays of Indra*, electromagnetic energy carries it towards the evolution. It has given it a further advancement. The *Aśvin's car is horsed*, it means the synthesis of the nucleus from the nucleotide pairs of the DNA, it has given the capacity to the cell just like a horse. Accordingly, *the Brahspati* (nucleus) brought the *cow of every hue.* It means through the regulation of the metabolic reactions, the genetic material has brought biodiversity in nature, where every cellular organism acting as food for the other. It has been indicated by cow of every hue, the cow is a metaphor for nourishment. Accordingly the cells have acquired different stages as *Ṛbhu*, *Vibhvan*, and *Vāja* during their life cycle. These three represents three stages of a cell as young, vigorous and old, their functions are under the natural factors.

निश्चर्म॑णो॒ गाम॑रिणीत धी॒तिभि॒र्या जर॑न्ता यु॒वशा ताकृ॑णोतन।
सौध॑न्वना॒ अश्वा॒दश्व॑मतक्षत यु॒क्त्वा रथ॒मुप॑ दे॒वाँ अ॑यातन।।७।।

7. *Ye by your wisdom brought a cow from out a hide; un to that ancient Pair ye gave again their youth. Out of a horse,* Sudhanvan's *Sons, ye formed a horse: a chariot ye equipped and went un to the Gods.*

In the next step of evolution, the *Ṛbhus* (cells) have developed a self nourishment system, through the development of proto-chlorophyll in the primitive condition. The same has been indicated through the *'Cow from the skin.'* The cow is metaphor for nourishment, which acts as a horse and the cell became well equipped and young. It means in the primitive conditions, genetic material as RNA or DNA first get synthesized in side a closed system, then with time proto-chlorophyll has been synthesized from the cell wall. (In the primary conditions some compounds may have been deposited on the surface of the cells, which in turn may have given the way for the development of the cell-wall and proto-chlorophyll with time). The synthesis of proto-chlorophyll from DNA has acted as a horsepower for the evolution, accordingly it has been said "*Ye (Ṛbhu) brought a horse out of a horse.*" It means the DNA– genetic material and chlorophyll are like a horsepower for the *Ṛbhus-cell.* Thus the cell became resistant to survive in the nature through cell division.

In the nature evolution of the living beings is due to the DNA. The development of the carbon skeleton is due to the chlorophyll through photosynthesis, which is the source of food (Glucose) for the living beings.

In this way the synthesis of the physical cell body has been described, how it proceeds towards further evolution. It has been indicated symbolically through **Ecological succession** in the nature.

f. The Ecological and Physiological Principles

After describing the formation of a cell in the primitive conditions, how the nature is working as a system. It has been indicated through conversation in an anthropomorphic manner.

इदमुदकं पिबतेत्यब्रवीतनेदं वा घा पिबता मुञ्जनेजनम्।
सौधन्वना यदि तन्नेव हर्यथ तृतीये घा सवने मादयाध्वै॥८॥

8. Drunk ye this water, were the words ye spake to them; or drink ye this, the rinsing of the Muñja- grass. If ye approve not even this, Sudhanvan's Sons, then at the third libation gladden ye yourselves.

Importance of the water for life has been indicated through "ye drink this water or ye drink water through rinsing of Muñja grass", which indicates that animals drink water and the plants (Muñja-grass) absorb water through their root system. Accordingly water provides streaming capacity to the protoplasm and the life energy in the cell. It has been expressed through the words of Ṛbhu– cell to the Sudhanvan developing cells– that if you will not take water then you yourselves will under go aging just as in the third stage of development. It has been indicated by

The Sudhanvan's Sons, then at the third libation gladden ye yourselves.

After indicating the importance of water, they have expressed the ecological and physiological functions in a symbolic fashion through conversation in an anthropomorphic manner.

आपो भूयिष्ठा इत्येको अब्रवीदग्निर्भूयिष्ठ इत्यन्यो अब्रवीत्।
वधर्यन्तीं बहुभ्यः प्रैको अब्रवीदृता वदन्तश्चमसाँ अपिंशत॥९॥

9. Most excellent are waters, thus said one of you: most excellent is Agni, *thus another said*

Another praised to many a one the lightening cloud. Then did ye shape the cups, speaking the words of truth.

Looking to the functions of the *Ṛbhus*-cells in the nature, according to one of the *Ṛbhu* water is essential. The second *Ṛbhu* said that *Agni*-energy is most important. The third one praised many factors and said that lightening clouds are important. Than the *Ṛbhu* (cell) it self has revealed the truth symbolically about the basic principles under which the ecosystem is working as a system.

श्रो॒णामेक॑ उद॒कं गामवा॑जति मां॒समेक॑ः पिंशति सू॒नयाभृ॑तम्।
आ नि॒म्रुच॒ः शकृदेको॒ अपा॑भर॒त्किं स्वि॑त्पु॒त्रेभ्य॑ः पि॒त॒रा उपा॑वतुः।।१०।।

10. One downward to the water drives the crippled cow, another trims the flesh brought on the carving board.

One carries off the refuse at the set of sun. How did the Parents aid their children in their task.

The *Ṛbhu* (cell) has expressed the truth about respiration, photosynthesis and the decomposition of the dead parts, through which the system operates in the nature. The cow is metaphor for the nourishment *"One downward to the water drives the crippled cow."* The term '*crippled cow*' has been used for the unwanted CO_2 (carbon dioxide), water moves in the downward direction. In the same fashion carbon dioxide get released from the cell, which is unwanted in the cell and as such get released during the respiration, but CO_2 is useful too for the photosynthesis and a source for the carbon skeleton of the living beings. Hence the seers have used the term "crippled cow" for the carbon di oxide.

"*Another trims the flesh brought on the carving board.*" Here the term 'flesh' has been used for the food material, which get synthesized during the photosynthesis in the cell (carving board), which get transported through the respiration and intermediary metabolism as food through living beings in the nature.

"*One carries off the refuse at the set of sun.*" Here the term 'set of sun' has been used for the end of life symbolically. The dead parts under go decomposition through microbes in the nature, in turn the waste material get released from the surface. These principles have given the way for the evolution of the living beings. Hence degradation and decomposition of the waste material by the decomposers has been indicated.

These three important ecological and physiological functions are going on in the nature, through which the nature is working as an ecosystem.

Looking towards the ecosystem a question has been asked *"how did the parents aid their children in their task"*.

उ॒द्व॒त्स्व॑स्मा अकृणोतना॒ तृणं॑ नि॒वत्स्व॒पः स्व॑प॒स्यया॑ नरः।
अगों॑ह्यस्य॒ यदस॑स्तना गृ॒हे तद॒द्येदमृ॑भवो॒ नानु॑ गच्छथ॥११॥

11. On the high places ye have made the grass for man, and water in the valleys, by your skill, O Men. Ṛbhus, ye iterate not today that act of yours, you are sleeping in the house of him whom naught can hide.

The parents represent pre-existing living beings. The answer has been given through the grass for man and water in the valley. Through this biogeochemical cycle has been indicated. It means the pre-existing living beings are the source of nourishment for the ecosystem, through the development of the soil system. Where after the death the dead organs get converted in to the organic manure and water initiates the growth of the grasses. It means development of the ecosystem through the succession has been indicated. In an ecosystem the pre-existing organisms with succession help in the development of soil with organic matter, which help in the organic evolution of the living beings.

The work of *Ṛbhu* (cell) due to which the creation system came in to existence is not for once only but it is repeated due to the fact that " *he is sleeping in the house of him whom nothing can hide*", it means life energy gets generated at its own, through the pre-existing cells with reproduction and cell division.

स॒म्मील्य॒ यद्भुव॑ना प॒र्यस॑र्पत॒ क्व॑ स्वित्ता॒त्या पि॒तरा॑ व आसतुः।
अश॑पत॒ यः क॒रस्नं॑ व आद॒दे यः प्राब्र॑वी॒त्प्रो तस्मा॑ अब्रवीतन॥१२॥

12. As compassing them round, ye glided through the worlds,where had the venerable Parents theie abode?

Ye laid a curse on him who raised his arm at you: to him who spake aloud to you ye spake again.

It has been expressed in a symbolic manner with addressing the *Ṛbhus*-cells, that you have over spread the world through cell division gradually. It is an indication towards the population of the living-beings in the nature. It has been asked that *where are your venerable Parents and their abode?*

It has been expressed that to destroy the organisms is a curse of *Ṛbhus* and harmony with them bring prosperity. It has been indicated by *Ye laid a curse on him who raised his arm at you: to him who spake aloud to you ye spake again.*

The parents of *Ṛbhus*-cells are heaven and earth. Accordingly the answer has been given in the succeeding verse that the *Maruts* move in the heaven and on the earth. The *Maruts*-rain cloud is an indication towards the source of water vapour's energy. It has been indicated by *Agni*-energy. From the middle atmosphere wind approaches the earth, where due to *theVaruṇa*-gravity, water has been accumulated in the sea. It has been indicated by *Varuṇa in the sea's gathered waters.* Accordingly the heaven and earth are the guardians of the living-beings.

सु॒षु॒प्वांस॑ ऋभव॒स्तद॑पृच्छ॒तागो॑ह्य॒ क इ॒दं नो॑ अबूबुधत्।
श्वानं॑ ब॒स्तो बो॑धयि॒तार॑मब्रवीत्संवत्स॒र इ॒दम॒द्या व्य॑ख्यत।।१३।।

13. When ye had slept your fill, ye Ṛbhus, thus ye asked, O thou whom naught may hide, who now hath wakened us? The goat declared the hound to be your wakener. That day, in a full year, ye first unclosed your eyes.

In an anthropomorphic manner through the conversation between the *Ṛbhus* and the nature, the secret of the dormancy period and the germination of the resting spores have been revealed.

It has been asked that *when ye had slept your fill,* it means, when you were sleeping. It is an indication towards the dormant condition of the resting spores of the plants. With return of the favourable condition, they germinate and produce the new plant.

O thou whom naught may hide, it means once the life energy has been established in the cells, it may not be conceal in any way. After the sleeping- dormant condition, the *Ṛbhus* have asked, *who has wakened us?* The answer has been given through a metaphor of goat and hound. It has been declared by the goat that hound is your wakener. The goat is a metaphor for the *Ṛbhu*-cell, which take part in the creation sacrifice with oblation, just like the goat is brought for oblation in the sacrificial rituals. The declaration of the goat that hound has wakened you. It is a metaphor to express the germination of the resting spores. It means just like the goat became active to escape from the eye of the hound to see him. In the same fashion with the return of favourable conditions the germination has been started with the initiation of respiration. It means the respiration is the hound, which has wakened the *Ṛbhu*-cell with life energy. It has been indicated

It has been said *That day, in a full year, ye first unclosed your eyes*. It means with the initiation of respiration, the resting cells became active to complete their annual life cycle. It has been indicated through the year and *ye first unclosed your eyes.*

दि॒वा या॑न्ति म॒रुतो॒ भूम्या॒ग्निर॒यं वातो॑ अ॒न्तरि॑क्षेण याति।
अ॒द्भिर्या॑ति॒ वरु॑णः समु॒द्रैर्यु॒ष्माँ इ॒च्छन्तः॑ शवसो नपातः।।१४।।

14. The Maruts move in heaven, on earth this Agni; through the mid-firmament the Wind approaches.

Varuṇa in the sea's gathered waters, O Sons of Strength, desirous of your presence.

The parents of Ṛbhus-cells are heaven and earth accordingly the answer has been given that the *Maruts* move in the heaven and on the earth, the *Maruts*-rain cloud is an indication towards the source of water vapour's energy, as indicated by *Agni*-energy. From the middle atmosphere wind approaches the earth, where due to the *Varuṇa*-gravity water has been accumulated in the sea. It means due to the gravitational force the water has been accumulated in the sea. It has been indicated by *Varuṇa in the sea's gathered waters,* as such the heaven and earth are the guardians of the living-beings.

With this *the Ṛbhus- the sons of sudhanvan, the powerful Ṛbhu* have been praised and their presence in the nature has been desired.

g. The journey of the Ṛbhu-cell from life to death

The journey of *Ṛbhu*-cell has been described in general with reference to the cell as an individual and as part of multi-cellular organism. The living organism exhibits same functions, such as growth, reproduction and energy transformation at cellular level. The multi-cellular organisms have been evolved from the unicellular organisms. The mature cell has come in to the existence from the coaservate drops, with the activity of the charged particles. These facts have been revealed in the *Ṛbhu hymns.*

The Ṛbhu is a common name of *Ṛbhu, Ṛbhukṣan and Vāja,* They represents three stages of the development of a cell as *Ṛbhu-eldest, Ṛbhukṣan, newly formed-Sudhanvan and Vāja*-youngest.The *Ṛbhu*-cell has been synthesized in the nature at its own under the natural conditions, how it proceeds towards aging-death? It has been revealed in a symbolic fashion through the mouth of eldest *Ṛbhu*-mature cell in an anthropomorphic manner. The *Ṛbhu* is protagonist, which narrate the *Ṛbhu's* path from life to death. Here life energy has been described as Steed- Courser, who proceeds towards its end through oblation in the nature with the *Ṛbhu*-cell. The DNA has been termed as *Tvaṣṭā* and the *Ṛbhu*-cell has been termed as *Dappled goat* metaphorically. The cellular body is proceeding towards sacrificial oblation in the nature through aging. The life energy has been termed as war horse, just like he is going for oblation in the creation sacrifice. Due to the life energy the creation has came in to the existence with evolution. The same has been described metaphorically as sacrifice.

मा नो॑ मि॒त्रो वरु॑णो अर्य॒मायुरिन्द्र॑ ऋभु॒क्षा म॒रुतः॒ परि॑ ख्यन्।
यद्वा॒जिनो॑ दे॒वजा॑तस्य॒ सप्तेः॑ प्र॒वक्ष्यामो॑ वि॒दथे॑ वी॒र्या॑णि।।१।।

1. Slight us not Varuṇa, Aryaman, or Mitra, Ṛbhukṣan, Indra, Ayu,or the Maruts,

When we declare amid the congregation the virtues the strong Steed, God-descended. (Ṛg. 1-162-1)

The story of *Ṛbhu,* start with the words of *Ṛbhu*-cell that do not understand us inferior from any of the natrural life resource. *Varuṇa-* gravity, due to the gravity the *Ṛbhu*-cell has mass, *Aryaman and Mitra-* rays of light, *Ṛbhukṣan–* vigorous *Ṛbhu*, *Vāyu-* air and *Maruts-* water clouds are the natural forces. It has been indicated that when all these–God- natural factors have been aggregrated at one place than only the strong steed- *Ṛbhu*-cell with life energy has been descended for sacrifice in the nature.

यन्नि॒र्णिजा॒ रेक्ण॑सा॒ प्रावृ॑तस्य रा॒तिं गृ॑भी॒तां मु॑ख॒तो नय॑न्ति।
सु॒प्राङ्॑जो मेम्य॑द्वि॒श्वरू॑प इन्द्रापू॒ष्णोः प्रि॒यमप्ये॑ति॒ पाथ॑ः॥२॥

2. What time they bear before the Courser, covered with trappings and with wealth, the grasped oblation,

The dappled goat goeth straightforward, bleating, to the place dear to Indra and to Pūṣan.

It has been asked that at which time before the Courser- life energy, the *Ṛbhu*-developing cell has been covered with trappings with wealth, which grasped the oblation.

The trappings, it is an indication towards the cellular coverings, which acts as the protector of the cell body, such as cell wall, cork, bark or skin in the animals. The wealth of the *Ṛbhu*-cell is an indication for the cell organelles, which take part in the creation sacrifice with their functions.

The answer has been given that the *dappled goat* goes bleating straight forward to the place near to *Indra* and *Pūṣan*. It means the developing cell take part in the creation sacrifice and grasped the oblation with actions and interactions. It has been termed as *dappled goat.* The cell moves forward like goat for oblation in the nature with development through nourishment and movement of the charged particles with generation of sound.

ए॒ष छाग॑ः पु॒रो अश्वे॑न वा॒जिना॑ पू॒ष्णो भा॒गो नी॑यते वि॒श्वदे॑व्यः।
अ॒भि॒प्रि॒यं यत्पु॑रो॒ळाश॒मर्व॑ता॒ त्वष्टेदे॑नं सौश्र॒वसा॑य जिन्वति॥३॥

3. Dear to all Gods, this Goat, the share of Pūṣan, is first led forward with the vigorous Courser,

While Tvaṣṭā sends him forward with the Charger, acceptable for sacrifice, to glory.

It has been said that the *goat*-living cell has came in to the existence through nourishment under natural forces. It proceeds further under the control of steed– vigorous Courser. *The Tvaṣṭā*-DNA-genetic material acts as charger. The *Tvaṣṭā*-DNA has the information for the physical development of the body. They prepare it for sacrifice-actions and interactions in the nature with physical development of the body. When the life cycle is completed, the body has been accepted for the sacrifice to its glory. It means the physical body after completing the life cycle, when again mixed in to the nature, it is a moment of glory.

यद्ध॑वि॒ष्य॑मृतु॒शो दे॑व॒यानं॒ त्रिर्मानु॑षा॒ः पर्य॑श्वं॒ नय॑न्ति।
अत्रा॑ पू॒ष्णः प्र॑थ॒मो भा॒ग ए॑ति य॒ज्ञं दे॒वेभ्य॑ः प्रतिवे॒दय॑न्न॒जः॥४॥

4. When thrice the men lead round the Steed, in order, who goeth to the Gods as meet oblation,

The goat precedeth him, the share of Pūṣan, and to the Gods the sacrifice announceth.

With reference to the men, it has been said that men with three stages in the life move round the Steed-life energy in order. He moves forward for oblation in the creation sacrifice. It has been indicated through a metaphor of sacrifice of goat. It has been said that in the first phase of life the goat– cellular body is the share of *Pūṣan*-nourishment. Accordingly with actions and interactions, he proceeds further for oblation in the nature. It has been indicated that the development of the cellular body is the beginning of the sacrifice-*yajña*.

होता॑ध्व॒र्युराव॑या अग्निमि॒न्धो ग्रा॑वग्रा॒भ उ॒त शंस्ता॒ सुवि॑प्रः।
तेन॑ य॒ज्ञे॒न स्व॑रङ्कृते॒न स्वि॑ष्टेन व॒क्षणा॒ आ पृं॑णध्वम्॥५॥

5. Invoker, ministering priest, atoner, fire-kindler, Soma-presser, sage, reciter,

With this well ordered sacrifice, well finished, do ye fill full the channels of the rivers.

The *Ṛbhu*-cell has been described as *Invoker, ministering priest, atoner, fire-kindler, Soma-presser, sage, reciter* in the creation sacrifice. It means in the living-beings all the functions are due to the cells, which is a well ordered, well finished system of actions and interactions. They full-fill all the requirements of the living-beings through the channels of the food chains and food webs in the nature. It has been indicated through the channels of the rivers metaphorically.

The life energy has been termed as Steed. His preparation as war horse for victory has been attributed to the cell in general and his journey in the life is just like the journey of war horse of the *Asvamegha yajña*. The war horse faces the obstacles during the journey, in the same fashion the *Ṛbhu*-cell face the obstacles in the nature, during the journey of life.

यू॒प॒व्र॒स्का उ॒त ये यू॑पवा॒हा॒श्च॒षालं॒ ये अ॑श्वयू॒पाय॒ तक्ष॑ति।
ये चार्व॑ते॒ पच॑नं स॒म्भर॑न्त्यु॒तो तेषा॑म॒भिगू॑र्तिर्न इन्वतु॥६॥

6. The hewers of the post and those who carry it, and those who carve the knob to deck the Horse's stake.

Those who prepare the cooking- vessels for the Steed,- may the approving help of these promote our work.

The *Ṛbhu*- cell as Steed in the nature is proceeding towards oblation in the sacrifice. The natural forces, which bind the life energy in the cell and the forces, which prepare and dress him through metabolism is for the *Ṛbhu*-Steed. It has been indicated by saying who prepare the cooking vessels for the steed. The *Ṛbhu* have prayed that the natural forces may promote our work in the nature. It means the nature is working as a system due to the synthesis and degradation in an orderly manner.

उप॒ प्रागा॑त्सु॒मन्मे॑ऽधायि॒ मन्म॑ दे॒वाना॒माशा॒ उप॑ वी॒तपृ॑ष्ठः।
अन्वे॑नं॒ विप्रा॒ ऋष॑यो मदन्ति दे॒वानां॑ पु॒ष्टे च॑कृमा सु॒बन्धु॑म्॥७॥

7. Forth, for the regions of the Gods, the Charger with his smooth back is come; my prayer attends him.

In him rejoice the singers and the sages. A good friend have we won for the God's banquet.

The *Ṛbhu*-cell has expressed that the Steed-*Ṛbhu* has come close to the natural forces as friend to participate in nature. It is an indication towards the maturity of the cell with DNA as its charger. The DNA has the information for the physical development of the body through hereditary characters. In the cell the natural forces rejoice just like singer and sage. It means the cell body is the place for the metabolic reactions. The developing cellular body has been expressed as good friend of nature.

य द्वा॒जिनो॒ दाम॑ स॒न्दान॒मर्व॑तो॒ या शी॑र्ष॒ण्या॑ रश॒ना रज्जु॑रस्य।
यद्वा॑ घा॒स्य॒ प्रभृ॑त॒मा॒स्ये॒३॒ तृणं॒ सर्वा॒ ता ते॒ अपि॑ दे॒वेष्व॑स्तु।।८।।

8. May the fleet Courser's halter and his heel-ropes, the head–stall and the girths and cords about him.

And the grass put within his mouth to bait him,– among the Gods,too, let all these be with thee.

The life energy dwelling in the cellular body is a place of halt of the Courser-life energy. The cell body bind the life energy in the cell. The factors which assist him have been described metaphorically as heel ropes, the head-stall, the girths and cords around him. The cell metabolism has been indicated through the grass put within his mouth, it means the food, which the cell consume and the grass to greed him is an indication towards the excess food, which is poisonous for the cell. The journey of the cellular body is just like the journey of war horse in the *Asvamedha yajña*. Through the metaphor, it has been indicated that the cell is the place of halt of the life energy, the streaming of protoplasm and metabolism acts as rope to bind him in the cell. It has been prayed that the life energy may remain in the cell with them.

यदश्व॑स्य क्र॒विषो॒ मक्षि॒काश॒ यद्वा॒ स्वरौ॒ स्वधि॑तौ रि॒प्तमस्ति॑।
यद्धस्त॑योः शमि॒तुर्य॒न्नखे॒षु सर्वा॒ ता ते॒ अपि॑ दे॒वेष्व॑स्तु।।९।।

9. What parts of the Steed's flesh the fly hath eaten, or is left sticking to the post or hatchet,

Or the slayer's hands and nails adhereth,-among the Gods, too, may all this be with thee.

It has been indicated that during the metabolism. The food-flesh, which has been consumed or eaten by the fly or is left undigested is just like the nails, which remains untouched from the slayer's hand, all these substances may remain among the natural components in the cellular body and may not harm it.

यदूव॑ध्यमु॒दर॑स्याप॒वाति॒ य आ॒मस्य॑ क्र॒विषो॑ ग॒न्धो अस्ति॑।
सु॒कृ॒ता तच्छ॑मि॒तारः॑ कृण्वन्तू॒त मेधं॑ शृत॒पाकं॑ पचन्तु॥१०॥

10. Food undigested steaming from his belly, and any odour of raw flesh remaining,

This let the immolators set in order and dress the sacrifice with perfect cooking.

It has been prayed that the undigested food in the cell and the bad odour of it, may be set in order by the consumers and dress the *Ṛbhu*-cell, so that the cell may proceed towards sacrifice with perfect cooking. It means, it has been prayed that the cell may move forward in life gradually towards aging with maturation of the cell body.

यत्ते॒ गात्रा॑द॒ग्निना॑ प॒च्यमा॑नाद॒भि शूलं॒ निह॑तस्याव॒धाव॑ति।
मा तद्भूम्या॒मा श्रि॑ष॒न्मा तृणे॑षु दे॒वेभ्य॒स्तदु॒शद्भ्यो॑ रा॒तम॑स्तु॥११॥

11. What from thy body which with fire is roasted, when thou art set upon the spit, distileth,

Let not that lie on earth or grass neglected, but to the longing Gods let all be offered.

It has been said by the *Ṛbhu* that *What from thy body which with fire is roasted,* it means the metabolic energy, which has been generated during the metabolism. It may be utilized by the natural forces within the cell.

ये वा॒जिनं॑ परि॒पश्य॑न्ति प॒क्वं य ई॑मा॒हुः सु॑र॒भिर्निर्ह॒रेति॑।
ये चार्व॑तो मांसभि॒क्षामु॒पास॑त उ॒तो तेषा॑म॒भिगू॑र्तिर्न इन्वतु॥१२॥

12. They who observing that the Horse is ready call out and say, the smell is good; remove it;

And carving meat, await the distribution,- may their approving help promote our labour.

After maturity of the cell, it under go aging, it has been indicated by saying that horse is ready and the carving meat, await the distribution. It means with aging the respective cellular parts will undergo decomposition, which will help in the ecological succession through modification of the physical environment. Hence it has been said by *Ṛbhu* that,- *may their approving help promote our labour.*

यन्नीक्षणं मांस्पचन्या उखाया या पात्राणि यूष्ण आसेचनानि।
ऊष्मण्यापिधाना चरूणामङ्काः सूनाः परि भूषन्त्यश्वम्।।१३।।

13. The tril fork of the flesh cooking caldron, the vessel out of which the broth is sprinkled,

The warming-pots, the covers of the dishes hooks, carving boards,- all these attend the Charger.

The *Ṛbhu*-cells, acts just like the *tril* fork of the flesh cooking caldron, or the vessel out of which broth is sprinkled. Along with this the warming pots, the covers of the dishes hooks, carving boards, all these attend the Charger. It means all the functions of the cells and the cellular metabolites are due to the Charger-DNA-life energy.

निक्रमणं निषदनं विवर्तनं यच्च पड्बीशमर्वतः।
यच्च पपौ यच्च घासिं जघास सर्वा ता ते अपि देवेष्वस्तु।।१४।।

14. The starting place, his place of rest and rolling, the ropes wherewith the Charger's feet were fastened,

The water that he drank, the food he tasted,- among the Gods, too, may all these attend thee.

The starting place of the *Ṛbhu*-cell, his place of rest and rolling, the ropes, who bind his feet, the water that he drank, the food he tasted, during the journey of life, all these may approach to the natural forces in the cell.

It has been indicated in a symbolic manner about the factors, which are responsible for the living activities of the *Ṛbhu* in the nature. It has been prayed that all these factors may attend the *Ṛbhu*-cell.

मा त्वाग्निर्ध्वनयीद्धूमगन्धिर्मोखा भ्राजन्त्यभि विक्त जघ्रिः।
इष्टं वीतमभिगूर्तं वषट्कृतं तं देवासः प्रति गृभ्णन्त्यश्वम्।।१५।।

15. Let not the fire, smoke- scented, make thee crackle, nor glowing caldron smell and break to pieces.

Offered, beloved, approved, and consecrated- such Charger do the Gods accept with favour.

It has been prayed in a symbolic fashion that during the journey of life. The *Ṛbhu*-cell may not under go premature aging. The natural forces may accept him for sacrifice, after completing his journey of life.

यदश्वा॑य॒ वास॑ उपस्तृ॒णन्त्य॑धीवा॒सं या हिर॑ण्यान्यस्मै।
स॒न्दा॒नमर्व॑न्तं॒ पड्बी॑शं प्रि॒या दे॒वेष्वा या॑मयन्ति।।१६।।

16. The robe they spread upon the Horse to clothe him, the upper covering and the golden trappings,

The halters which restrain the Steed, the heel- ropes, all these, as grateful to the Gods, they offer.

It has been said through the symbols of the war horse that the robe spread and cloth upon the horse, his upper covering, golden trapping and the halters, which restrain the Steed, all these as grateful to the Gods- natural forces.

The coverings represent the cell wall of the plant cell, cork, bark of the plant and skin in the animals. They provide protection from injury. These are the natural factors and part of the nature, which restrain the Steed-life energy in the cell. They provide longevity to the cellular organisms.

यत्ते॑ सा॒दे मह॑सा॒ शू॒कृ॑तस्य॒ पाष्ण्या॑ वा॒ कश॑या वा तु॒तोद॑।
स्रु॒चेव॒ ता ह॒विषो॑ अध्व॒रेषु॒ सर्वा॒ ता ते॒ ब्रह्म॑णा सूदयामि।।१७।।

17. If one, when seated, with excessive urging hath with his heel or with his whip distressed thee,

All these thy woes, as with the oblations'ladle at sacrifices, with my prayer I banish.

It has been expressed that during the journey of the *Ṛbhu*-cells in the nature. The inhibitors or the obstacles are his woes during the sacrifice- actions and interactions. It has been prayed that they may be banished.

चतु॑स्त्रिंशद्वा॒जिनो॑ दे॒वब॑न्धो॒र्वङ्क्री॒रश्व॑स्य॒ स्वधि॑ति॒ः समे॑ति।
अच्छि॑द्रा॒ गात्रा॑ व॒युना॑ कृणोत॒ परु॑ष्परुरनु॒घुष्या॒ वि शं॑स्त॥१८॥

18. The four- and thirty ribs of the swift Charger, kin to the Gods, the slayer's hatchet pierces,

Cut ye with skill, so that the parts be flaw less, and piece by piece declaring them dissect them

The *Ṛbhus* exhibits their functions in the nature under the control of the Charger- DNA. The four and thirty ribs represents, the four bases of the DNA and thirty represents a sequence of thirty triplets, which constitute a gene. They are kin to the natural forces. The sequence of the bases may be disturbed by the natural forces or by the slayer, who can dissect it. It has been prayed that he may cut them with skill so that the parts of the cellular body may not be damaged.

The development of the physical cellular body from DNA as charger has been expressed.

एक॒स्त्वष्टु॒रश्व॑स्या विश॒स्ता द्वा य॒न्तारा॑ भवत॒स्तथ॑ ऋ॒तुः।
या ते॒ गात्रा॑णामृतु॒था कृ॒णोमि॒ ताता॒ पिण्डा॑नां॒ प्र जु॑होम्य॒ग्नौ॥१९॥

19. Of Tvaṣṭā's Charger there is one dissector- this is the custom- two there are who guide him.

Such of his limbs as I divide in order, all these, amid the balls, in fire I offer.

Further it has been indicated that the *Tvaṣṭā*-DNA, acts as charger. It has one dissector, it means the DNA who is responsible for the physical development, it has one code as dissector and two codes follow him as guide, such of his limbs. It means the triplet codes are the parts of DNA, which I divide in order.

It has been indicated in an anthropomorphic manner that through these codes in order, the body parts have been developed. All these, amid the balls, in fire I offer- it means with death of the physical body, the body will be put under fire balls with cremation.

In a symbolic fashion the importance of triplet code with triple bond of hydrogen has been indicated, where one nucleotide pair has triple hydrogen bond and other two with double bond of hydrogen regulate the development of the physical body. It has been expressed by saying such of his limbs I divide in order. It means in a systematic order, the development of the body is there, which with the fleshy components of the body offered in the fire with the end of life.

मा त्वा॑ तपत्प्रि॒य आ॒त्मापि॒यन्तं॒ मा स्वधि॑तिस्त॒न्व१॒ आ ति॑ष्ठिपत्ते।
मा ते॑ गृ॒ध्नुर॑विश॒स्ताति॒हाय॑ छि॒द्रा गात्रा॑ण्य॒सिना॒ मिथू॑ कः।।२०।।

20. Let not thy dear soul burn thee as thou comest, let not the hatchet linger in thy body.

Let not a greedy clumsy immolator, missing the joints, mangle thy limbs unduly.

After the death, the body may be buried in the soil. It has been prayed that, when the body proceeds on the path of decomposition, your soul may not feel pains. The sword may not injure body. The consumers may not consume your body parts unduly. It means it has been indicated that with burial of the dead, let not your soul burn thee, it means it may not remain here with the body. After the burial of the body in the soil some greedy immolator may not misuse the dead body. It has been indicated through *Let not a greedy clumsy immolator, missing the joints, mangle thy limbs unduly.*

न वा उ॑ ए॒तन्म्रि॑यसे॒ न रि॑ष्यसि दे॒वाँ इदे॑षि प॒थिभि॑ः सु॒गेभि॑ः।
हरी॑ ते॒ युञ्जा॒ पृष॑ती अभूता॒मुपा॑स्थाद्वा॒जी धु॒रि रास॑भस्य।।२१।।

21 No, here thou dies not, thou art not injured: by easy paths unto the Gods thou guest.

Both bays, both spotted mares are now thy fellows, and to the ass's pole is yoked the Charger.

No, here thou dies not– it means the life energy is immortal, *thou art not injured*– it means life energy can't be injured. You are the guest of the natural forces, it has been indicated by: *easy paths unto the Gods thou guest.*

It means with the death, the physical body will under go decomposition and in an easy way the body parts will be mixed in the nature. As such the dead body is the guest of nature as organic matter.

The two bays– oppositely charged ion, *both spotted mares-* the two strips of DNA. Symbolically it has been indicated that the organic matter has two types of ions and the DNA has two strips. They through bio-geo-chemical cycle and DNA duplication during the cell division synthesize the cell body. Accordingly ions and the DNA are the fellows of the life energy. They synthesize the cell body for the life energy. In the cell the life energy is bound like *the ass's pole is yoked the Charger.*

सु॒गव्यं॑ नो वा॒जी स्वश्व्यं॑ पुं॒सः पु॒त्राँ उ॒त वि॑श्वा॒पुषं॑ र॒यिम्।
अ॒ना॒-गा॒स्त्वं नो॒ अदि॑तिः कृणोतु क्ष॒त्रं नो॒ अश्वो॑ वनतां ह॒विष्मा॑न्।।२२।।

22. May this Steed bring us all-sustaining riches, wealth in good kine, good horses, many offspring.

Freedom from sin may Aditi vouchsafe us : the Steed with our oblations gain us worship!

It has been prayed that with the re-genesis, this steed-*Ṛbhu* may bring us prosperity in all manner. It has been also prayed that we may be free from sin, and *Aditi*-nature protect us. Accordingly the steed-*Ṛbhu*-cell body may grant us worship with oblation in the nature.

h. Journey of life energy in the nature

The Steed-life energy has been first mounted by *Indra,* through the movement of charged particles. It has been described metaphorically as war horse of *Aśvamedha yajña.* In the *Yajña* a horse is send as a symbol of victory over other states, which is to be sacrificed after victory. The ornaments, trappings, coverings, cords and ropes of the horse to bind him have been described metaphorically to indicate the cork, bark and the cell wall of the *Ṛbhu*-cell with life energy. The cooking of the flesh, during his journey, cooking vessels, covers and dishes its distribution after the cooking. They are metaphors to indicate the functions of the cell in the nature with its metabolic reactions. The cell came at rest with aging. (Ṛg. 1-163-1)

यदक्र॑न्दः प्रथ॒मं जाय॑मान उ॒द्यन्त्स॑मु॒द्रादु॒त वा॒ पुरी॑षात्।
श्ये॒नस्य॑ प॒क्षा ह॑रि॒णस्य॑ बा॒हू उ॑प॒स्तुत्य॒ं महि॑ जा॒तं ते॑ अर्वन्॥१॥

The first cell has been synthesized in the seawater and has been termed as *Ṛbhu* and the life energy as Steed.

1. What time, first springing in to life, thou neighedst, proceeding from the sea or upper waters,

Limbs of the deer hadst thou, and eagle pinions, O steed, thy birth is high and must be louded.

It has been asked that at what time the *Ṛbhu* has sprang in to life. The answer has been given that life has originated first in sea or in upper water. The life energy is having a speed like an eagle or Deer. The birth of life is very high. It must be celebrated loudly.

य॒मेन॑ द॒त्तं त्रि॒त ए॑नमायु॒नगिन्द्र॑ एणं प्रथ॒मो अध्य॑तिष्ठत्।
ग॒न्ध॒र्वो॑ अ॑स्य रश॒नाम॑गृभ्णा॒त्सूरा॒दश्वं॑ वसवो॒ निर॑तष्ट॥२॥

2. This steed which, Yama gave hath Trita harnessed, and him, the first of all, hath Indra mounted.

His bridle the Gandharva grasped. O Vasus, from out the Sun ye fashioned forth the Courser. (Rg. 1-163-2)

It has been expressed that the Steed of life is *Trita* harnessed, which has been given by *Yama.* It is an indication towards the three stages of life– childhood, young and old age. The *Yama* represents chromosome, the chromosomes have the information for the development of the physical body, as such it has been said that it has been given by *Yama.* The life has been first mounted by *Indra. The Indra* represents electricity in the early stages due to the movements of the charged particles the life energy has been generated inside the coaservate first. Hence it has been said that *Indra* has mounted first. It has been grasped by *Gandharva* just like a bridle. The *Gandharva* represents viscous mass of protoplasm. Due to the streaming movements of the protoplasm life energy has its existence in the cell. When streaming is blocked, the life energy get disappear. Hence it has been said that the life energy has been grasped by the *Gandharva* as bridle, where bridle is metaphor for the life energy. O *Vasus*, it is an expression for the a-biotic substances, which have synthesized the *Ṛbhu*– cell in the water first. The sun is the main energy source on the earth, hence it has been said that the Courser-the cell has been fashioned by the sun.

असि॑ य॒मो अस्या॑दि॒त्यो अ॑र्व॒न्नसि॑ त्रि॒तो गुह्ये॑न व्र॒तेन॑।
असि॒ सोमे॑न स॒मया॒ विपृ॑क्त आ॒हुस्ते॒ त्रीणि॑ दि॒वि बन्ध॑नानि।।३।।

3. Yama art thou, O horse; thou art Āditya; Trita art thou by secret operation.

Thou art divided thoroughly from Soma. They say thou hast three bonds in heaven that hold thee.

Yama art thou, O horse; thou art Āditya; Trita art thou by secret operation– Due to the vigorous nature of the *Ṛbhu*-cell, the *Ṛbhu* has been called as Steed metaphorically. The *Ṛbhu* take part in the creation sacrifice, it came in to the existence from the *Yama*-chromosome and due to the twelve *Āditya*-twelve months under temperature pressure gradient. Hence it has been said that *thou art Yama, thou art Āditya, Trita art thou by secret operation*. Ii indicates about the synthesis of *Ṛbhu*-cell due to the Triple bond of the nucleotide pairs of the DNA. The genetic material, DNA has the information for the synthesis of the cell. It bears the hereditary characters to synthesize the cell in nature.

Thou art divided thoroughly from Soma- it means the whole synthesis is due to the *Soma*- magnetic energy. *They say thou hast three bonds in heaven, which hold thee*. It means the Ozone layer in the atmosphere, which absorbs the ultra violet Rays and due to which life is present on the earth.

त्रीणि॑ त आहुर्दि॒वि बन्ध॑नानि॒ त्रीण्य॒प्सु त्रीण्य॒न्तः स॑मु॒द्रे।
उ॒तेव॑ मे॒ वरु॑णश्छन्त्स्यर्व॒न्यत्रा॑ त आ॒हुः प॑र॒मं ज॒नित्र॑म्।।४।।

4. Three bonds, they say, thou hast in heaven that bind thee, three in the waters, three within the ocean.

To me thou seemest Varuṇa,. O Courser there where they say is thy sublimest birth place.

It has been expressed that *Ṛbhu*-cell has three bonds in heaven, it represents ozone layer in the atmosphere. Due to the presence of Ozone layer (O_3) in the upper atmosphere life is present on the earth. The Ozone layer absorbs the high energetic Ultraviolet Rays, and only visible light come on the earth's surface. *Three bonds in the water*, it means two-hydrogen and a single bond of oxygen of the water molecule, the water is a life resource for the *Ṛbhu*-cell. *Three bonds within the ocean*, it means in the ocean of life, the *Trita*- triple bond of the nucleotide pair on the DNA strips. It is the main source of development of the cellular body.

To me thou seemest Varuṇa, the *Ṛbhu* seems like *Varun*, it indicates that the cellular mass came in to the existence due to gravity and aggregation of the materialistic substances. The cell body is the birth place of the courser life energy. It has been indicated that after the aggregation of the materialistic substances in the viscous mass. Due to the streaming movements of the mass, the life energy has been generated as Courser.

इ॒मा ते॑ वाजिन्नव॒मार्ज॑नानी॒मा श॒फानां॑ सनि॒तुर्नि॒धाना॑।
अत्रा॑ ते भ॒द्रा र॑श॒ना अ॑पश्यमृ॒तस्य॒ या अ॑भि॒रक्ष॑न्ति गो॒पाः।।५।।

5. Here Courser, are the places where they groomed thee, here are the traces of thy hoofs as winner.

Here I have seen the auspicious reins that guide thee, which those who guard the holy law keep safely.

In an anthropomorphic manner, it has been expressed that in the ocean of life on the earth. The *Ṛbhus* are the places, where the a-biotic substances have groomed the life energy in the physical form. These are the traces of thy hoofs, it means, the physical biological world has its existence due to the life energy. *The auspicious reins*-represents the two strips of DNA. The DNA regulates the functions of the *Ṛbhus* with hereditary characters in the life. On the path of their journey they guard the holy law safely. It means the existence of the living-beings on the earth is

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due to the DNA. Which maintain the equilibrium in the nature through synthesis and degradation through oxidation and reduction. Hence it has been said that they guard holy law.

आ॒त्मानं॑ ते॒ मन॑सा॒राद॑जानाम॒वो दि॒वा प॒तय॑न्तं पत॒ङ्गम्।
शिरो॑ अपश्यं प॒थिभिः॑ सु॒गेभि॑ररे॒णुभि॒र्जेह॑मानं पत॒त्रि॥६॥

6. Thyself from far I recognized in spirit,- a Bird that from below flew through the heaven.

I saw thy head still soaring, striving upward by paths unsoiled by dust, pleasant to travel.

The life energy has been recognized in the form of spirit like a bird, who flew from the heaven, which travel in different ways.

अत्रा॑ ते रू॒पमु॑त्त॒मम॑पश्यं॒ जिगी॑षमाणमि॒ष आ प॒दे गोः।
य॒दा ते॒ मर्तो॒ अनु॒ भोग॒मान॒ळादिद्ग्रसि॑ष्ठ॒ ओष॑धीरजीगः॥७॥

7. Here I beheld thy form, matchless in glory, eager to win thee food at the Cow's station.

Whenever a man brings thee to thine enjoyment, thou swallowest the plants most greedy eater.

The life energy is matchless in glory, which consume the food through the *Ṛbhus,* which act *as cow's station*. It means that the living-beings are the source of food for each other. It has been indicated by, *eager to win thee food at the Cow's station.* The cow is a metaphor for the nourishment.

Due to their nourishing character, whene'er a men brings thee to thine enjoyment- it means the human body is a greedy consumer of the food, where life energy is in its full function.

अनु॑ त्वा॒ रथो॒ अनु॒ मर्यो॑ अर्व॒न्ननु॒ गावोऽनु॒ भगः॑ क॒नीना॑म्।
अनु॒ व्राता॑स॒स्तव॑ स॒ख्यमी॑यु॒रनु॑ दे॒वा म॑मिरे वी॒र्यं॑ ते॥८॥

8. After thee Courser, come the car, the bridegroom, the kine come after, and the charm of maidens.

Full companies have followed for thy friendship: the pattern of thy vigour Gods have copied.

It has been indicated that after the Courser-life energy, the

Ṛbhu-cell came in to the existence as a moving car. The car is metaphor for the moving cell body, than the bridegroom follow him. The bridegroom is metaphor for the protoplasm, where due to the streaming movements of the protoplasm life energy has been generated. Hence it has been said that bridegroom came after, after that the kine and charm of maiden has been there. The charm of maiden is a metaphor for the pair of DNA strips. The DNA follows the individual with duplication for the friendship. It means the *Ṛbhu's* car on the path of evolution move forward through DNA. It has different forms in the nature.

हिर॑ण्यशृ॒ङ्गोऽयो॑ अस्य॒ पादा॒ मनो॑जवा॒ अव॑र॒ इन्द्र॑ आसीत्।
दे॒वा इद॑स्य हवि॒रद्य॑माय॒न्यो अर्व॑न्तं प्रथ॒मो अ॒ध्यति॑ष्ठत्।।९।।

9.Horns made of gold hath he: his feet are iron,less fleet than he, though swift as thought is Indra.

The Gods have come that they may taste the oblation of him who mounted, first of all the Courser.

Through the metaphor, *Horns made of gold hath he* it has been indicated that life is beautiful like gold horns. *His feet are iron,* It means life energy is hard to influence like iron though the life energy is swift just like thought is *Indra*. Through these metaphors and symbols the nature and speed of life energy has been indicated.

The Gods have come that they may taste the oblation of him who mounted, first of all the Courser.

It has been expressed that the natural forces have been coming to interact with the living cellular body *to taste the oblation of him who mounted first of all the Courser*. It means the natural forces have mounted first of all the courser-life energy in the cell and they are interacting just like out sider.

ई॒र्मान्ता॑स॒ः सिलि॑कमध्यमास॒ः सं शूर॑णासो दि॒व्यासो॒ अत्या॑ः।
हं॒साइ॑व श्रे॑णि॒शो य॑तन्ते॒ यदाक्षि॑षुर्दि॒व्यमज्म॒मश्वा॑ः।।१०।।

10. Symmetrical in flank, with rounded haunches, mettled like heroes, the celestial Coursers.

Put forth their strength, like swans in lengthened order, when they, *the Steeds have reached the heavenly causeway.*

The *Ṛbhus* have been described as celestial Coursers as courageous heroes, they are symmetrical in shape, they take part in the creation sacrifice like hero having strength like swan and reached to their natural aging on the heavenly path.

The structure and nature of the cell body in the nature has been expressed, it has been indicated that the cells of cellular body are symmetrical in shape. They constitute the fleshy parts of body. The cells are just like celestial Courser. They are the heroes of the nature. They develop in nature just like in the speed of swan in an orderly manner. *When they the Steed-life energy have reached the heavenly cause way.* It means when the life energy disappear, the cellular body under go aging on their natural path.

तव॒ शरी॑रं पतयि॒ष्ण्व॑र्व॒न्तव॑ चि॒त्तं वात॑इव॒ ध्रजी॑मान्।
तव॒ शृङ्गा॑णि॒ विष्ठि॑ता पुरु॒त्रार॑ण्येषु॒ जर्भु॑राणा चरन्ति।।११।।

11. A body formed for flight hast thou, O charger; swift as the wind in motion is thy spirit.

Thy horns are spread abroad in all directions: they move with restless beat in wildernesses.

It has been said that *Ṛbhu* has a body formed for flight in nature. The Charger-DNA is swift like wind and the motion is his spirit. His horns have been spread in all directions. It means the *Ṛbhus*- cells have a charger as DNA with life energy, his function has been expressed as swift like wind in motion, which is the spirit of the cell body, due to which, the cells have spread in all the directions. It has been expressed through the metaphor of horns that their movement is hard to check like hard horns, they are moving and working in the different forms in a restless manner in the wild and at other places.

उप॒ प्रागा॒च्छस॑नं वा॒ज्यर्वा॑ दे॒वद्री॑चा॒ मन॑सा॒ दीध्या॑नः।
अ॒जः पु॒रो नी॑यते॒ नाभि॑र॒स्यानु॑ प॒श्चात्क॒वयो॑ यन्ति रे॒भाः।।१२।।

12. The strong Steed hath come forward to the slaughter, pondering with a mind directed God-ward.

It has been said that with aging the strong steed- Ṛbhu have come forward to the slaughter and going to merge with the natural forces. The aging is the slaughter of the *Ṛbhu*-cell. It has been indicated.

उ॒प॒ प्रागा॑त्पर॒मं यत्स॒धस्थ॒मर्वाँ॒ अच्छा॑ पि॒तरं॑ मा॒तरं॑ च।
अ॒द्या दे॒वाञ्जुष्ट॑तमो॒ हि ग॒म्या अथा शास्ते॑ दा॒शुषे॒ वार्या॑णि।।१३।।

13. The goat who is his kin is led before him: the sages and the singers follow after.

The Steed is come unto the noblest mansion, is come unto his Father and his Mother.

This day shall he approach the Gods, most welcome: then he declares good gifts to him who offers.

It has been indicated that aging proceed gradually with the disappearance of the life energy from the cellular body-goat, the decomposition of the cell organelles follow him just like sages and singers.

Finally the life energy will be merged in to the parent fundamental energy.

The decomposition of the cellular body is a gift to the nature and for the living-beings.

It means with the end of life, the life energy will be merged in to her parent heaven and earth. The natural components will be decomposed in the nature.

2. Cellular functions

The living-beings exhibit same functions at the cellular level, such as growth, reproduction and energy transformation under the control of ecosystem. They are interconnected through food chains and food webs in the nature. In the ecosystem, each component is having its own importance. With their functions, they maintain the equilibrium in the nature. They are the source of natural wealth and natural resources. It has been indicated in a symbolic fashion with expression of their functions in the nature.

a. Autotrophic Ṛbhus– cells

प्र ऋभुभ्यो दूतमिव वाचमिष्य उपस्तिरे श्वैतरीं धेनुमीळे।
ये वातजूतास्तरणिभिरेवैः परि द्यां सद्यो अपसो बभूवुः।।१।।

1. I send my voice as herald to the Ṛbhus; I crave the white cow for the overspreading.

Wind-sped, the Skilful Ones in rapid motion have in an instant compassed round the heaven. (Ṛgveda 4-XXXIII-1)

The *Ṛbhus*-cells have been praised as forerunner– messenger and the white cow has been invoked for its overspreading on the earth. The cow is a symbolic expression for the nourishment. The visible light feed the creation through photosynthesis by the *Ṛbhus*-cells. In this way the *Ṛbhus* are forerunner, they have been spread over the earth and heaven. It has been indicated by wind speed.

The Skilful Ones in rapid motion, it means the air-oxygen released during the process give a rapid motion to the activity of *Ṛbhus*-cells, accordingly the chemical energy and Oxygen have spread on the earth and instantly available round the heaven.

यदारमक्रन्नृभवः पितृभ्यां परिविष्टी वेषणा दंसनाभिः।
आदिद्देवानामुप सख्यमायन्धीरासः पुष्टिमवहन्मनायै।।२।।

2. What time the Ṛbhus had with care and marvels done proper service to assist their Parents, *They won the friendship of the Gods; the Sages carried away the fruit of their devotion.*

It has been asked that *at which time the Ṛbhus- cells have done this marvellous service to assist their parents.* The answer has been given that the cells have won the friend ship of the natural forces. It means the first they have adopted them selves to resist in the adverse environmental conditions for life. The sages- the newly formed *Ṛbhus* cells with cell division and functions in the nature have carried the fruit of their devotion like sages to spread them in the nature.

It means the products of the photo synthesis like oxygen and glucose have been spread in the nature through multiplication of the cells. The parents are the old cells, which under go aging and decomposition with death. The organic matter with nutrient has modified the physical environment through bio-geo-chemical cycles. It has been expressed as *Ṛbhu's* marvellous service to assist their parents. The parents are the pre-existing organisms.

The Sages carried away the fruit of their devotion, The sage is a symbolic expression for the off-springs. They have carried the fruit of their devotion with their life cycle in the nature. They have speed up the process of organic evolution through their functions with biodiversity in the nature.

पु॒नर्यें च॒क्रुः पित॒रा॒ युवा॑ना॒ सना॒ यूपे॑व जर॒णा शया॑ना।
ते वाजो॒ विभ्वाँ॑ ऋ॒भुरिन्द्र॑वन्तो॒ मधु॑प्सरसो नोऽवन्तु य॒ज्ञम्।।३।।

3. May they who made their Parents, who were lying like posts that moulder, young again for ever,-

May Vāja, Vibhvan, Ṛbhu, joined with Indra, protect our sacrifice, the Soma-lovers.

It has been expressed that the *Ṛbhus*, who have made their parents young again for ever, they who were lying like posts that moulder. It means the dead cells were lying as dead, they were decomposed with the help of *Ṛbhus*- decomposer-micro organisms. The organic matter with nutrients nourishes the developing *Ṛbhus*-cells and in turn they became young for ever through cell division. *The Vāja, Vibhvan and Ṛbhu* represents different stages of the development of *Ṛbhu*-cell, they have been prayed that they remain active with *Indra*-charged particles. They generate *Soma*-life energy with movements. It has been expressed as *Soma* lovers to protect our sacrifice, it means with their functions they grant long life time.

यत्सं॒वत्स॑मृ॒भवो॒ गाम॑रक्ष॒न्यत्सं॒वत्स॑मृ॒भवो॒ मा अपिं॑शन्।
यत्सं॒वत्स॒मभ॑र॒न्भासो अस्या॒स्ताभि॒ः शमी॑भिरमृत॒त्वमा॑शुः।।४।।

4. As for a year the Ṛbhus kept the Milch-cow, throughout a year fashioned and formed her body,

And through a year's space still sustained her brightness, through these their labours they were made immortal.

How the cell became immortal, it has been explained by saying that the *Ṛbhus kept the Milk- cow throughout a year fashioned and formed her body*. The milk cow represents the synthesis of Chlorophyll, which feed the cell through photosynthesis. It has been indicated that in the primitive condition the proto-chlorophyll was synthesised, when it remained active for about a year with brightness throughout the year's time. With this the cells were made immortal. It means they became autotrophic by nature, with a mechanism to synthesize their own food material.

ज्ये॒ष्ठ आ॑ह चम॒सा द्वा क॒रेति॒ कनी॑या॒न्त्रीन्कृ॑णवा॒मेत्या॑ह।
क॒नि॒ष्ठ आ॑ह च॒तुर॑स्क॒रेति॒ त्वष्ट॑ ऋभव॒स्तत्प॑नय॒द्वचो॑ वः।।५।।

5. Two beakers let us make,-thus said the eldest. Let us make three,-this was the younger's sentence.

Four beakers let us make,- thus spoke the youngest. Tvaṣṭā approved this rede of yours, O Ṛbhus.

The cell division has been indicated through the mouth of eldest *Ṛbhu*-old cell that let us divide the beaker in to two, the younger one said that let us make three and the youngest *Ṛbhu*-cell said let us make four beakers-cells. The *Tvaṣṭā*- DNA approved the version of the youngest *Ṛbhu*. It means the youngest cell is fit for the cell division.

स॒त्यमू॑चु॒र्नर॑ ए॒वा हि च॒क्रुरनु॑ स्व॒धामृ॒भवो॑ जग्मुरे॒ताम्।
वि॒भ्राज॑मानांश्चम॒साँ अहे॒वावे॑न॒त्त्वष्टा॑ च॒तुरो॑ ददृ॒श्वान्।।६।।

6. The men spake truth and even so they acted : this God like way of theirs the Ṛbhus followed.

And Tvaṣṭā, when he looked on the four beakers resplendent as the day, was moved with envy.

The men spake the truth and even so they acted; Symbolically it has been indicated that the *Ṛbhus* have followed the approval of *Tvaṣṭā*, accordingly the young *Ṛbhu* has been divided in to four and *Tvaṣṭā* -DNA looked on the four beakers-cells. It means with the cell division, the genetic material *Tvaṣṭā*-DNA has also divided. With this the new cells have proceed further just like the day move forward with sun rise.

द्वाद॑श॒ द्यून्यदगो॑ह्यस्याति॒थ्ये रण॑न्नृ॒भवः॑ स॒सन्तः॑।
सु॒क्षेत्रा॑कृण्व॒न्नन॑यन्त॒ सिन्धू॒न्धन्वाति॑ष्ठ॒न्नोष॑धीर्नि॒म्नमापः॑।।७।।

7. When for twelve days the Ṛbhus joyed reposing as guests of him who never may be hidden,

They made fair fertile fields, they brought the rivers. Plants spread o'er deserts, waters filled the hollows.

It has been indicated that for about twelve days, when the cell was having life energy in its full function. With this the cells acquired the capacity for cell division and became immortal. Hence it has been said that life energy is guest, who never may be hidden. Accordingly they brought fertile fields with rivers and the plants spread over the deserts. With this the water filled the vacant places.

It means with the cell division, the cell have proceeded towards evolution with the formation of food chains and food webs in the nature. Accordingly the living-beings with plants have been evolved, which have been spread over the deserts. The transpiration of water from the surface of the plants and the rain have filled the empty canals. It has been indicated through- *They made fair fertile fields, they brought the rivers. Plants spread o'er deserts, waters filled the hollows.*

रथं॒ ये च॒क्रुः सु॒वृतं॑ नरे॒ष्ठां ये धे॒नुं वि॑श्व॒जुवं॑ वि॒श्वरू॑पाम्।
त आ त॑क्षन्त्वृ॒भवो॑ र॒यिं नः॒ स्ववं॑सः॒ स्वप॑सः सु॒हस्ताः॑।।८।।

8 May they who formed the swift car, bearing Heroes, and the Cow omniform and all-impelling,

Even may they form wealth for us,-the Ṛbhus, dexterous-handed, deft in work and gracious.

The formation of the well developed moving cell has been indicated as car, which bear heroes. It is an indication towards cell organelles and the cow omni form is a metaphor for the genetic material. It means the genetic material-DNA impel the cell towards evolution and brought the biodiversity. It has been indicated through *cow omni form and all-impelling.*

It has been expressed that the *Ṛbhus-cells are* like dexterous handed craft-man-they' are the source of natural wealth for us.

अपो॒ ह्ये॑षा॒मजु॑षन्त दे॒वा अ॒भि क्रत्वा॒ मन॑सा॒ दीध्या॑नाः।
वाजो॑ दे॒वाना॑मभवत्सु॒कर्मेन्द्र॑स्य ऋभु॒क्षा वरु॑णस्य॒ विभ्वा॑।।९।।

9 So in their work the Gods had satisfaction, pondering it with thought and mental insight.

The Gods' expert artificer was Vāja, Indra's Ṛbhukṣan, Varuṇa's was Vibhvan.

It has been expressed that with the evolution of the livivingbeings on the earth, the natural forces have been satisfied with their work, which is worth to look over. For the evolution of the world of the living-beings the expert artificer was *Vāja*-young cells. They serve the nature through cell division. The *Indra's Ṛbhukṣan*- mature cell, the mature *Ṛbhus* have relation with the *Indra*- generation of life energy. The *Vibhvan* have relation with the *Varuṇa*- biomass. They are related with biomass. These three represents different stages of the cell in the nature, with development of the cellular body.

ये हरी॑ मे॒धयो॒क्था मद॑न्त॒ इन्द्रा॑य च॒क्रुः सु॒युजा॒ ये अश्वा॑।
ते रा॒यस्पोषं॒ द्रवि॑णान्य॒स्मे ध॒त्त ऋ॑भवः क्षेमय॑न्तो॒ न मि॒त्रम्।।१०।।

10. They who, made glad with sacrifice and praises, wrought the *two Bays, his docile Steeds, for Indra,-*

Ṛbhus, as those who wish a friend to prosper, bestow upon us gear and growth of riches.

The natural forces with actions and interactions brought for them joy and praise, they wrought two bays for *Indra-*, it means opposite electrical charges.

It has been prayed that *Ṛbhus* may bestow upon us growth with cell division. The *Ṛbhus* are friend for those who wish to prosper. It means the cells provide healthy body with their functions.

इ॒दाह्नः॑ पी॒तिमु॒त वो॒ मदं॑ धु॒र्न ऋ॒ते श्रा॒न्तस्य॑ स॒ख्याय॑ दे॒वाः।
ते नू॒नम॒स्मे ऋ॑भवो॒ वसू॑नि तृ॒तीये॑ अ॒स्मिन्त्सव॑ने दधात॥११॥

11. This day have they set gladdening drink before you. Not without toil are Gods inclined to friendship.

*Therefore do ye who are so great, O Ṛbhus, vouchsafe us treasures at this **third libation.***

It has been expressed that the day when the *gladdening drink*-aging approach a cellular body. The body became the friend of the natural forces. It has been addressed to the *Ṛbhus*-cellular body that you are so great that aging has approached you. It has been prayed to them that grant us treasures at this third stage of life-libation. With this the cellular body under go decomposition and became the part of nature as a source of organic matter.

b. Ṛbhus– Developing cellular body

इ॒होप॑ यात शवसो नपा॒तः सौध॑न्वना ऋभवो॒ माप॑ भूत।
अ॒स्मिन्हि व॒ः सव॑ने र॒त्नधे॒यं ग॒मन्त्विन्द्र॒मनु॑ वो॒ मदा॑सः॥१॥

1 .Come hither, O ye Sons of Strength, ye Ṛbhus; stay not afar, ye Children of Sudhavan.

At this libation is your gift of treasure. Let gladdening drop approach you after Indra's. (Rg. 4-XXXV-1)

The children of Sudhanvan- it means children of coaservates, which have been developed from the *Sudhanvan*. Children of strength represents well developed mature *Ṛbhu-* cell, which are the part of the human body, they have been invoked, it has been prayed that stay not afar, it means remain with us, so that we may live long, *at this libation is your gift of treasure,* it means the cells have reached at their peak of development and ready for aging. These cells act as a natural resource, which is their gift to the nature. *let gladdening drop approach you after Indra*, it has been prayed that the *Ṛbhus*-cells may not undergo early aging before the *Indra*.

आग॑न्नृभू॒णामि॒ह र॑त्न॒धेय॒मभू॒त्सोम॑स्य॒ सुषु॑तस्य पी॒तिः।
सु॒कृ॒त्यया॒ यत्स्व॑प॒स्यया॑ चँ॒ एकं विच॒क्र च॑म॒सं च॑तु॒र्धा।।२।।

2. Hither is come the Ṛbhu's gift of riches; here was the drinking of the well - Soma.pressed Soma.

Since by dexterity and skill as craftsman ye made the single chalice to be fourfold.

The *Ṛbhus-* the cells have been praised for their functions in the nature. They have reached to us in the form of natural resources as food and fresh air just as gift of *Ṛbhus*-cells to the nature.

Drinking of the well- Soma.pressed Soma,– Through the well of *Soma,* it has been expressed that in the multi-cellular bodies the cells are interconnected from cell to cell. The life energy generates in an integrated manner in the cellular bodies. The cellular body has been termed as well of *Soma*.

The *Ṛbhus*–cells in the multi-cellular organisms have been developed through cell division in a fourfold manner. This is the act of *Ṛbhu*–cell just like a dexterous craftsman. Where life energy– *Soma* is generating in an integrated manner, hence it has been asked in a symbolic fashion to the young *Ṛbhus*–cells that come and enjoy *well of Soma.pressed Soma.*

व्य॑कृणोत चम॒सं च॑तु॒र्धा सखे॒ वि शि॒क्षेत्य॑ब्रवीत।
अथै॑त वाजा अ॒मृत॑स्य॒ पन्थां ग॒णं दे॒वाना॑मृभवः सुहस्ताः।।३।।

3. Ye made fourfold the chalice that was single: ye spake these words and said O Friend, assist us;

Then Vājas! gained the path of life eternal, deft handed Ṛbhus, to the God's assembly.

It has been expressed that the multi-cellular bodies have been developed from the single cell through the cell division in fourfold manner.

Through the words of *Ṛbhus*-cells in an anthropomorphic manner *O fried assist us*. It has been indicated that the multi-cellular bodies have their functions in an integrated manner, being similar in origin and synonym to each other just like friends.

The cells have acquired the life eternal due to the cell division. The function of *Vājas*-young cells in the body is just like dexterous craft man in the assembly of the natural forces and factors in the body. It has been indicated by *Then Vājas! gained the path of life eternal, deft handed Ṛbhus, to the God's assembly.*

किं॒मयः॑ स्वि॒च्च॒मस॑ ए॒ष आ॑स॒ यं काव्ये॑न च॒तुरो॑ विच॒क्र।
अथा॑ सुनु॒ध्वं सव॑नं॒ मदा॑य पा॒त ऋ॑भवो॒ मधु॑नः सो॒म्यस्य॑।।४।।

4. Out of what substance was that chalice fashioned which ye made fourfold by your art and wisdom?

It has been asked that out of which substance, with your cleverness, you have fashioned the cell. Which has been dividing in a fourfold manner with your art of wisdom?

शच्या॑कर्त पि॒त॒रा युवा॑ना॒ शच्या॑कर्त च॒मसं॑ दे॑व॒पान॑म्।
शच्या॒ हरी॒ धनु॑तरावतष्टेन्द्र॒वाहा॑वृभवो वाजरत्नाः।।५।।

5. Ye with your cunning made your parents youthful; the cup, for Gods to drink ye formed with cunning;

With cunning, Ṛbhu rich in treasure fashioned the two swift Twany Steeds who carry Indra.

The answer has been given that *Ṛbhu*-cell has prepared a *chamsam*-cup for the natural forces to act in it. With their skill through cell division, the parent cells became young.

It has been expressed that due to the functions of *Ṛbhus*-cells in the nature. They are the source of natural resources through the oxidation and reduction reactions in the nature. It has been indicated by *With cunning, Ṛbhu rich in treasure fashioned the two swift Twany Steeds who carry Indra.*

यो व॑ः सु॒नोत्य॑भिपि॒त्वे अह्नां॑ ती॒व्रं वा॑जास॒ः सव॑नं॒ मदा॑य।
तस्मै॑ र॒यिमृ॑भव॒ः सर्व॑वीर॒मा त॑क्षत वृषणो मन्दसा॒नाः॥६॥

6. Whoso pours out for you, when days are closing, the sharp libation for your joy, O Vājas.

For him O mighty Ṛbhus, ye rejoicing have fashioned wealth with plenteous store of heroes.

It has been expressed that the development of the cellular body is just like the movement of the day towards closing. In the same fashion the cellular body move towards its end. The food they consume is for the functions of the *Vājas*-young cells. It has been indicated by– *Whoso pours out for you, when days are closing, the sharp libation for your joy, O Vājas.*

It has been indicated that the mighty *Ṛbhus* in the nature have fashioned the natural wealth with the natural forces as the heroes of the nature. It has been indicated by– *For him O mighty Ṛbhus, ye rejoicing have fashioned wealth with plenteous store of heroes.*

प्रा॒तः सु॒तम॑पिबो हर्यश्व॒ माध्यं॑न्दिनं॒ सव॑नं केव॑लं ते।
समृ॒भुभि॑ः पिबस्व रत्न॒धेभि॒ः सखीँ॒याँ इन्द्र चकृ॒षे सु॑कृ॒त्या॥७॥

7. Lord of Bay Steeds, at dawn the juice thou drankest: thine, only thine, is the noon- day libation.

Now drink thou with the wealth bestowing Ṛbhus, whom for their skill thou madest friends, OIndra.

It has been said that *the lord of Bay Steeds, at dawn the juice thou drankest: is thine only thine,* it means the winning cells have been addressed. They have won the race, through completing their course of life cycle. *The Dawn*– sun rise indicates the development of the physical body during their life cycle just like the day move towards sunset. In the same fashion the cellular body move towards its end. They consume the food for the development of the cellular body. With maturity of the cells, the food reserve increases in the cells just like that during the noon hours, when the food material synthesised remains there without transfer in the cell. In the same fashion with maturity of the cellular body, the food material accumulates in the cell as reserve food material with a decrease in the metabolism. The cellular products act as natural wealth with aging. Accordingly the functions of the young cells has been desired. It has been indicated by *Now drink thou with the wealth bestowing Ṛbhus*, it means the products of the cells are the source of nature with organic matter, due to this they became the friend of *Indra*.

ये दे॒वासो॒ अभ॑वता सुकृ॒त्या श्ये॒नाइ॒वेदधि॑ दि॒वि नि॑षे॒द।
ते रत्नं॑ धात शवसो नपात॒ः सौध॑न्वना॒ अभ॑वता॒मृता॑सः।।८।।

8. Ye whom your artist skill hath raised to God head have set you down above in heaven like falcons.

So give us riches, Children Sudhanvan, O Sons of Strength; ye have become immortal.

It has been indicated that due to the functions of the *Ṛbhus* in the nature. They have been raised to the status of natural force with their interactions in the nature. As a natural resource their importance has been established on the earth and heaven. It has been indicated that the natural forces have set them like falcons. The falcon is a metaphor for the atmospheric gases.

So give us riches, *Children Sudhanvan, O Sons of Strength*; the youngest *Ṛbhus*-cells with optimum metabolic activities and cell division have been invoked as children of *Sudhanvan*, and strength. They are immortal with cell division as they preserved their identity through the cell division.

यत्तृ॒तीयं सव॑नं रत्न॒धेय॒मकृ॑णुध्वं स्वप॒स्या सु॑हस्ताः।
तदृ॑भव॒ः परि॑षिक्तं व ए॒तत्सं मदे॑भिरिन्द्रि॒येभि॑ः पिबध्वम्।।९।।

9. The third libation, that bestoweth treasure which ye have won by skill, ye dexterous-handed,–

This drink hath been effused for you, Ṛbhus: drink it with high delight, with joy like Indra.

It has been indicated that with the old third stage of life, the old cells are the source of treasure through their cell organelles and parts. They have synthesized them during the life period. It has been prayed that with aging this drink has been effused and enjoy this moment as the joy of *Indra*. It means with aging the cell will under go decomposition and *Indra-* life energy will be free in the nature. It has been expressed as joy of *Indra* and in the same manner the aging cells will be decomposed in the nature, it should be enjoyed like joy of *Indra.*

c. Ṛbhus–Vibhvan–Vigorous cells

अ॒न॒श्वो जा॒तो अ॑नभी॒शुरु॒क्थ्यो॒३॑ रथ॑स्त्रिच॒क्रः परि॑ वर्तते॒ रजः॑।
म॒हत्तद्वो॑ दे॒व्य॑स्य प्र॒वाच॑नं॒ द्यामृ॑भवः पृथि॒वीं यच्च॒ पुष्य॑थ॥१॥

1. The car that was not made for horses or for reins, three-wheeled, worth of louds, rolls round the firmament.

That is the great announcement of your Deity, that, O ye Ṛbhus, ye sustain the earth and heaven. (Rg. 4. XXXVI-1)

It has been expressed that the *Ṛbhu's* car, about which we are talking is not made for *horses or for reins,* even than the car is three wheeled. It rolls round the firmament. It is worth to be praised.

In a symbolic fashion, it has been indicated that the *Ṛbhu-*cell has three stages in life. After completing their life cycle they undergo aging with decomposition of the cell body. The living-beings have come in to the existence from the single *Ṛbhu-*cell, they are moving round the firmament with their various forms. Further it has been indicated that the world of the living-beings in the heaven and earth has been sustained by the *Ṛbhus-*cells. It means due to the bio-geo-chemical cycle in the nature, they sustain the earth and heaven. It has been indicated by *That is the great announcement of your Deity, that, O ye Ṛbhus, ye sustain the earth and heaven*

र॒थं ये च॒क्रुः सु॒वृतं॑ सु॒चेत॒सोऽवि॑ह्वरन्तं॒ मन॑स॒स्परि॒ ध्यया॑।
ताँ ऊ॒ न्व॑१॒स्य सव॑नस्य पी॒तय॒ आ वो॑ वाजा ऋभवो वेदयामसि॥२॥

2. Ye Sapient Ones who made the lightly rolling car out of your mind, by thought, the car that never errs,

You being such, to drink of this drink offering, you, O ye Vājas, and ye Ṛbhus, we invoke.

It has been expressed that the *Ṛbhu-* made the lightly rolling car. It means in the beginning, the coaservates showing movements came in to the existence. They with the generation of life energy became immortal with the cell division. Hence the car-cell, which has been synthesised by the *Ṛbhu* never err. As such the young and mature cells have been expressed as O *ye Vājas, and ye Ṛbhus*. Due to their importance in the nature with cell division, they have been invoked.

तद्वो वाजा ऋभवः सुप्रवाचनं देवेषु विभ्वो अभवन्महित्वनम्।
जिव्री यत्सन्ता पितरा सनाजुरा पुनर्युवाना चरथाय तक्षथ।।३।।

3. O Vājas, Ṛbhus, reaching far among the Gods this was your exaltation gloriously declared,

In that your aged Parents, worn with length of days, ye wrought again to youth so that they moved at will.

It has been expressed that *Ṛbhus*-cells, with their actions and interactions in the nature, they became the part of nature. It is their highest exaltation. The cell under go cell division and the cell again become young. The cell, which under go cell division is parent and young cells are his off-springs. Hence it has been expressed symbolically that *Ṛbhu*-cell, you have made your parents young again. They exhibit their functions in the nature at their own. It means after completing the life cycle, the seeds germinate and produces new independent plants.

एकं वि चक्र चमसं चतुर्वयं निश्चर्मणो गामरिणीत धीतिभिः।
अथा देवेष्वमृतत्वमानश श्रुष्टी वाजा ऋभवस्तद्व उक्थ्यम्।।४।।

4. The chalice that was single ye have made fourfold, and by your wisdom brought the Cow forth from the hide.

So quickly, mid the Gods, ye gained immortal life, Vājas and Ṛbhus, your great work must br extolled.

The cell division has been expressed by saying that the chalice-cell, which was one, you have increased it in a fourfold manner. The cow is a symbol of nourishment, hence it has been said that for their nourishment with their wisdom, they brought the cow from the hide. It means the cells during their development synthesize the proto-chlorophyll from the outer wall of the cell, it has been indicated symbolically *through cow forth from the hide.* With this among the natural forces and factors, *Vājas* and *Ṛbhus* have gained the immortality.

ऋ॒भु॒तो र॒यिः प्र॑थ॒मश्र॑वस्तमो॒ वाज॑श्रुतासो॒ यमजी॑जन॒न्नरः॑।
वि॒भ्व॒त॒ष्टो वि॒दथे॑षु प्र॒वाच्यो॒ यं दे॑वा॒सोऽव॑था॒ स विच॑र्षणिः।।५।।

5. Wealth from the Ṛbhus is most glorious in renown, that which the Heroes. Famed for vigour, have produced.

In synods must be sung the car which Vibhvan wrought: that which ye favour, Gods ! is famed among mankind.

The heroes are young cells, as *Vibhvan*, which vigorously synthesize the food material. It has been expressed through, *Wealth from the Ṛbhus,* it means the organic matter, which have been synthesized by the living beings through the cellular functions is a source of organic matter and gases in the nature. Due to this the natural forces are working in the nature. It is the glorious work of the *Ṛbhus.* Accordingly the favour of *Vibhvan* may grant long life and fame among mankind. It has been indicated through *God-natural forces haves been famed among mankind.*

स वा॒ज्यर्वा॒ स ऋषि॑र्वच॒स्यया॒ स शूरो॒ अस्ता॒ पृत॑नासु दु॒ष्टरः॑।
स रा॒यस्पोषं॒ स सु॒वीर्यं॑ दधे॒ यं वाजो॒ विभ्वाँ॑ ऋ॒भवो॒ यमावि॑षुः।।६।।

6. Strong is the steed the man a sage in eloquence, the bowman is a hero hard to bear in fight,

Great store of wealth and manly power hath he obtained whom Vāja, Vibhvan, Ṛbhus have looked kindly on.

It has been indicated the man is sage due to the strong life energy in the body. His power is due to the cellular functions and favour of *Vāja, Vibhvan, and Ṛbhus.*

श्रेष्ठं॑ व॒ः पेशो॒ अ॒धि॑ धायि दर्श॒तं स्तोमो॑ वाजा ऋभव॒स्तं जु॑जुष्टन।
धीरा॑सो॒ हि ष्ठा क॒वयो॑ विप॒श्चित॒स्तान्व॑ ए॒ना ब्रह्म॒णा वे॑दयामसि।।७।।

7. To you hath been assigned the fairest ornament, the hymn of praise: Vājas and Ṛbhus for therein,

For ye have lore and wisdom and poetic skill; as such, with this our prayer we call on you to come.

The *Ṛbhus* have been praised as ornament of the body, through, which the body exhibits its functions with metabolism. It has been expressed as the poetic skill and wisdom of the *Vājas*- and *Ṛbhus*. They synthesize the food. Hence they have been prayed to come. It has been indicated metaphorically.

यू॒यम॒स्मभ्यं॑ धि॒षणा॑भ्य॒स्परि॑ वि॒द्वांसो॒ विश्वा॒ नर्या॑णि॒ भोज॑ना।
द्यु॒मन्तं॒ वाजं॒ वृष॑शुष्ममुत्त॒ममा नो॑ र॒यिमृ॑भवस्तक्ष॒ता वय॑ः।।८।।

8. According to the wishes of our hearts may ye, who have full knowledge of all the delight of men,

Fashion for us, O Ṛbhus, power and splendid wealth, rich in high courage, excellent, and vital strength.

The *Ṛbhus*-cells have been praised for their power to give wisdom, courage and vitality with strength. It indicates that these all are related with the cellular functions and health.

इ॒ह प्र॒जामि॒ह र॒यिं ररा॑णा इ॒ह श्रवो॑ वी॒रव॑त्तक्षता नः।
येन॑ व॒यं चि॒तये॒मात्य॒न्यान्तं वाजं॑ चि॒त्रमृ॑भवो ददा नः।।९।।

9. Bestowing on us here riches and offspring, here fashion fame for us befitting heroes.

Vauchsafe us wealth of splendid sort, O Ṛbhus, that we may make us more renowned than others.

The *Ṛbhus*-cells have been invoked to give richness with off-springs and all sort of success in life. It has been prayed to the *Ṛbhus* that we may be more successful than the others.

d. Ṛbhus–The young cells– Power house

In the nature the young cells are most active. They synthesize the food material through metabolism as metabolic products for the self and for others also. Hence *Vājas and Ṛbhukṣans* have been praised for their functions.

उप नो वाजा अध्वरमृभुक्षा देवा यात पथिभिर्देवयानैः।
यथा यज्ञं मनुषो विक्ष्वा३ सु दधिध्वे रण्वाः सुदिनेष्वह्नाम्।।१।।

1. Come to our sacrifice, Vājas, Ṛbhukṣan, Gods, by the paths which Gods are wont to travel,

As ye, gay Gods, accept in splendid weather the sacrifice among these folk of Manus. (Rg. 4-XXXVII)

The Vājas and Ṛbhukṣan have been prayed to take part in the creation sacrifice. It is due to their functions the natural forces are accustomed to work in the nature. The splendid weather on the earth is due to them and sacrifice-actions and interactions among the mankind belong to the *Ṛbhus*-cells.

ते वो हृदे मनसे सन्तु यज्ञा जुष्टासो अद्य घृतनिर्णिजो गुः।
प्र वः सुतासो हरयन्त पूर्णाः क्रत्वे दक्षाय हर्षयन्त पीताः।।२।।

2. May these rites please you in your heart and spirit; may the drops clothed in oil this day approach you.

May the abundant juices bear you onward to power and strength, and when imbibed, delight you.

It has been indicated that the functions, which have been their in the cells are for the cell it self. It has been prayed that the food synthesized during the day time may reach to them. The food synthesized during the day time by the green plant cells has been indicated by *may the drops clothed in oil this day approach you*, the power of the cell function is the sap within the cell. It has been indicated by the *abundant juices bear you.* The dormant spores became active, when they imbibe water, it has been indicated by *when water is imbibed, delight you.*

त्र्युदायं देवहितं यथा वः स्तोमो वाजा ऋभुक्षणो ददे वः।
जुह्वे मनुष्वदुपरासु विक्षु युष्मे सचा बृहद्दिवेषु सोमम्।।३।।

3. Your threefold going near is God- appointed, so praise is given you, Vājas and Ṛbhukṣans.

So Manus- like, mid younger folk I offer, to you who are aloft in heaven, the Soma.

It has been expressed that the *Ṛbhus*- cellular bodies interact with the nature in a threefold manner under cosmic law. The credit for it goes to *Vājas and Ṛbhukṣans.* Symbolically through the threefold the physiological processs Photosynthesis, Respiration and Transpiration have been indicated. The animal shows respiration, perspiration and excretion.

In this way the *Ṛbhus* are like man and younger folk, who are preparing soma for self and for others. In this way all organisms are interconnected. So I offer my prayers to you like men, you are above the heaven due to the *Soma* within you. It has been indicated.

पीवोँअश्वाः शु॒चद्र॑था॒ हि भू॒ताय॑ः शिप्रा वाजिनः सु॒निष्काः।
इन्द्र॑स्य सूनो शवसो नपा॒तोऽनु॑ वश्चेत्यग्रि॒यं मदा॑य।।४।।

4. Strong, with fair chains of gold and jaws of iron, ye have a splendid car and wellfed horses.

Ye Sons of Strength, ye progeny of Indra, to you the best is offered to delight you.

Symbolically it has been said that the *Ṛbhus*- cells are are very strong to resist in the nature. They can face adverse environmental conditions efficiently through adaptions. In this way their nature is hard like iron, the multi-cellular organisms, where cells are arranged in a chain, they are just like chains of gold. Just like the chain they are interconnected and assist each other. It has been termed as fair chains of gold. The *Ṛbhu's* car-cell is splendid and has well fed horses. It means the cells are having their own feeding mechanism and genetic material just like horse. They are the progeny of *Indra*- it is a symbolic expression for the life energy. The life energy has been generated initially due to the movement of the charged particles in the developing cell. Hence they are the progeny of *Indra*. It has been indicated through *Indra*.

ऋ॒भुमृ॑भुक्षणो र॒यिं वाजे॑ वा॒जिन्त॑मं॒ युज॑म्।
इन्द्र॑स्वन्तं हवामहे सदा॒सात॑मम॒श्विन॑म्।। ५।।

5. Ṛbhukṣans! Him, for handy wealth, the mightiest comrade in the fight,

Him, Indra's equal, we invoke, most bounteous ever, rich in steeds.

The *Ṛbhukṣans* are newly formed cells. They are mightiest comrade in the fight of life with strong life energy. Hence *the Ṛbhukṣans* have been considered equal to the *Indra.* The *Ṛbhukṣans* have a strong source of life energy, due to the streaming of protoplasm and metabolic reactions. It has been termed as rich in steeds.

सेदृ॑भवो॒ यमव॑थ यू॒यमिन्द्र॑श्च॒ मर्त्य॑म्।
स धी॒भिर॑स्तु॒ सनि॑ता मे॒धसा॑ता॒ सो अर्व॑ता।।६।।

6. The mortal man whom, Ṛbhus, ye and Indra favour with your help,

Must be successful, by his thoughts, at sacrifice and with the steed.

It has been said that the mortal man, who is favoured by the *Ṛbhus and Indra*. He must be successful with his thoughts at sacrifice in the nature with strong life energy-steed. It has been indicated that with the healthy body, healthy mind is there. Accordingly the person will be successful in life with strong source of life energy. It has been expressed as favour of *Ṛbhu and Indra.*

वि नो॑ वाजा ऋभुक्षणः प॒थश्चि॑तन॒ यष्ट॑वे।
अ॒स्मभ्यं॑ सूरयः स्तु॒ता विश्वा॒ आशा॑स्तरी॒षणि॑।।७।।

7. O Vājas and Ṛbhukṣans, free for us the paths to sacrifice,

Ye princes, louded, that we may press forward to each point of heaven.

It has been prayed to *Vājas and Ṛbhukṣans* that make the path of life easy, with the supply of fresh air from heaven. It has been indicated by *we may press forward to each point of heaven.*

तं नो॑ वाजा ऋभुक्षण॒ इन्द्र॒ नास॑त्या र॒यिम्।
सम॑श्वं चर्ष॒णिभ्य॒ आ पु॒रु श॑स्त म॒घत्त॑ये।।८।।

8. O Vājas and Ṛbhukṣans, ye Nāsatyas, Indra, bless this wealth, *And before other men's the steed, that ample riches may be won.*

For the prosperity in life with strong life energy *Vājas and Ṛbhukṣans, ye Nāsatyas and Indra* have been invoked. It means through the well developed functions of the new and young cells, the *Nāsatyas*- two nucleotide pairs of the DNA will act with the *Indra*-electrical charge. They are the source of prosperity in comparison to other fellows. It has been indicted that through the functional aspects related with *the Indra and Nāsatyas*, the human-beings achieve success and prosperity in life.

e. Dadhikras– Life energy in the cell

The hymn of *Dadhikras*, start with you two. The two are *Vājas and Ṛbhukṣan*, they represents the gifts. The gift has been granted by *Trasadasyu* in earlier era. It means, they are talking about the energy, which was generated earlier first in the atom. In an atom, magnetic energy generates due to the movements of the charged electrons around the nucleus. It acts as bond energy with electrostatic energy of the nucleus. The electromagnetic bond energy is responsible for the synthesis and degradation of the materialistic substances in the nature.

It has been indicated through *Trasadasyu* that they have granted it to *Puruṣa*. It means the *Puruṣa* represents fundamental energy, as described in the *Puruṣa sūkta* metaphorically.

The *Ṛbhus* have been synthesized chemically from the materialistic substances in the nature, accordingly, it has been said that *Vājas and Ṛbhukṣan,* you came as gift. The gift to the nature is due to the life-energy. Accordingly the living-beings exhibit their functions in the nature. Their functions have been expressed through *Dadhikra*-life energy, and *Dadhikrāvan* is the place of dwelling of *Dadhikra*-life energy in the human body. The life energy has been described through the metaphor as a warrior or brave king. It means the journey of life energy in the nature is like a battle with the adverse conditions. Hence the *Dadhikra* has been expressed as war like steed.

उतो हि वां दात्रा सन्ति पूर्वा या पूरुभ्यस्त्रसदस्युर्नितोशे।
क्षेत्रासां ददथुरुर्वरासां घनं दस्युभ्यो अभिभूतिमुग्रम्।।१।।

1. From you two came the gifts in days aforetime which Trasadasyu granted to the Puruṣa.

Ye gave the winner of our fields and plough-lands, and the strong smiter who subdued the Dasyus. (4. XXXVIII)

It has been said that you two *Vājas and Ṛbhukṣan*, came as gifts, as in earlier time, which was given by *Trasadasyu to Puruṣa.*

These two are new and young *Ṛbhu*-cell. They are the source of nature as gift. The *Trasadasyu* represents fundamental particles *and Puruṣa* represents fundamental magnetic energy. It has been indicated that the energy generates in the Atom and in the cell is same, due to this the atom and the *Ṛbhu-cell* have their existence.

Ye Vājas and Ṛbhukṣan gave the winner of our fields and plough-lands. It means the *Ṛbhus*-cells are the source of green fields in the nature. It indicates the evolution of the living-beings from the primitive *Ṛbhu*- cell. Due to this the biological diversity is there.

The strong smiter who subdued the Dasyus, it means the life energy is all round strong from the cellular components. They bind it in the cell. They have been termed as *Dasyus-obstacles.*

उ॒त वा॒जिनं॑ पुरुनि॒षिध्वा॑नं दधि॒क्रामु॑ ददथुर्वि॒श्वकृ॑ष्टिम्।
ऋ॒जि॒प्यं श्ये॒नं प्रु॑षि॒तप्सु॑मा॒शुं च॒र्कृत्य॑म॒र्यो नृ॒पतिं॒ न शूर॑म्।।२।।

2. And ye gave mighty Dadhikras, the giver of many gifts, who visiteth all people,

Impetuous hawk, swift and of varied colour, like a brave King whom each true man must honour.

And ye gave mighty Dadhikras, it means with the evolution from the *Vājas and Ṛbhukṣan*, the *Dadhikra*-life energy came in to the existence as a vigorous courser *in the human body.*

Where *Dadhikras* in plural form represents the biological diversity with life, the gift to the nature is due to the living-beings, they are the source of natural forces and factors. The presence of life energy in the living-beings has been expressed by saying, *who visiteth all people.*

It has been indicated that the life energy is just like *Impetuous hawk,* due its *swift* nature it has various forms and colours among the living-being. The life energy must be honoured by all.

यं सी॒मनु॑ प्र॒वते॑व॒ द्रव॑न्तं॒ विश्वः॑ पू॒रुर्मद॑ति॒ हर्ष॑माणः।
प॒ड्भिर्गृध्य॑न्तं मेध॒युं न शूरं॑ रथ॒तुरं॒ वात॑मिव॒ ध्रज॑न्तम्।।३।।

3. Whom as 'twere down a precipices and his heart rejoices,

Springing forth like a hero fain for battle, whirling the car and flying like the tempest.

The speedy motion of the life energy as a vigorous courser in the nature has been compared by saying that the *Dadhikra*-life energy has speed like water, which *'twere down from the clouds.* He is like a warrior, who is going on war with joy like a hero, who on his car-cell body, *flying like tempest wind.*

यः स्मा॑रुन्धा॒नो गध्या॑ स॒मत्सु॒ सनु॑तर॒श्चर॑ति॒ गोषु॒ गच्छ॑न्।
आ॒विर्ऋ॑जीको वि॒दथा॑ नि॒चिक्य॑त्ति॒रो अ॑र॒तिं पर्याप॑ आ॒योः।।४।।

4. Who gaineth precious booty in the combats and moveth, winning spoil among the cattle;

Shown in bright colour, looking on the assemblies, beyond the churl, to worship of the living.

As a warrior in the battle of life, it gains precious booty. It means during the period of life, the cellular body– *Ṛbhus-cells* synthesize the food materials with development of the physical body. It has been expressed as precious booty in the combats.

The food material synthesised by the primary producers move among the cattle-living-beings, through food webs and the food chains. It has been expressed by *and moveth, winning spoil among the cattle;*

Due to the feeding mechanism, the living-beings exhibit bright colours and the group of communities. *Over looking the churl, they worship the living.* It means the life energy neglects the non living, it worship the living-beings with life. It has been expressed by saying- *Shown in bright colour, looking on the assemblies, beyond the churl, to worship of the living.*

उत स्मैनं वस्त्रमथिं न तायुमनु क्रोशन्ति क्षितयो भरेषु।
नीचायमानं जसुरिं न श्येनं श्रवश्चाच्छा पशुमच्च यूथम्।।५।।

5. Loudly the folk cry after him in battles, as 'twere a thief who steals away a garment;

Speeding to glory, or a herd of cattle, even as a hungry falcon swooping downward.

Through the metaphors the importance of the life energy has been indicated. Just like in the battle the folk cry to see the enemies for the sake of life. In the same fashion, when a man cry to see the thief, who has stolen the garment. Similarly, the birds cry to see the hungry falcon swooping downward with speed. It is all due to the life energy and for the life energy.

Speeding to glory, or a herd of cattle. It has been indicated that life energy has reached to its glory in the herd of cattle on the earth. The herd of cattle is a metaphor for the living-beings on the earth.

उत स्मासु प्रथमः सरिष्यन्नि वेवेति श्रेणिभी रथानाम्।
स्रजं कृण्वानो जन्यो न शुभ्वा रेणुं रेरिहत्किरणं ददश्वान्।।६।।

6. And fain to come forth first amid these armies, this way and that with rows of cars he rushes,

Gay like a bride's man, making him a garland, tossing the dust, champing the rein that holds him.

The movement of the life energy is like a warrior, who is dressed beautifully like a bride man. The life energy is like he, who appear first just like the fain. Who goes first in the race of armies, with the rows of cars, they rush ahead.

The life energy is like a bride man, who has life energy like a garland. He is like a hero, who move forward with tossing the dust and champing the rein that holds him.

It means during the journey of life, the life energy has been dressed with the cell body, in which it appears first as a warrior in the battle of life. His companions are cell organelles and parts of the body. They are rushing with him like the rows of car. The life energy move straight forward like a hero, the cellular body is rein that holds him in the body with functions. It has been indicated through the metaphor.

उ॒त स्य वा॒जी सहु॑रिर्ऋ॒तावा॒ शुश्रू॑षमाणस्त॒न्वा॑ सम॒र्ये।
तुरं॑ य॒ती॑षु तु॒रय॑न्नृजि॒प्योऽधि॑ भ्रु॒वोः कि॑रते रे॒णुमृ॒ञ्जन्॥७॥

7. And that strong Steed, victorious and faithful, obedient with his body in the combat,

Speeding straight on amid the swiftly pressing, casts o'er his brows the dust he tosses upward.

The victorious life energy as strong steed is faithful and obedient with his body in the battle of life. Accordingly the life energy with speed move straight forward among the obstacles. Just like a war horse move straight forward tossing the dust upward.

उ॒त स्मा॑स्य तन्य॒तोरि॑व॒ द्योर्ऋ॑घाय॒तो अ॑भि॒युजो॑ भयन्ते।
य॒दा स॒हस्र॑म॒भि षी॒मयो॑धीद्दु॒र्वर्तुः॑ स्मा भवति भी॒म ऋ॒ञ्जन्॥८॥

8. And at his thunder, like the roar of heaven, those who attack tremble and are affrighted;

For when he fights against embattled thousands, dread is he in his striving; none may stay him.

The life energy is like warrior, he fight against embattled thousands. His thunder is like roar of heaven and those, who attack, they tremble and are affrighted. It means during the journey of life, the life energy resists against the natural factors, which inhibit or bind it in the cell.

The individual's actions in the life are related with the life and for the life. The life energy is so strong that none may stay against him in his efforts.

उ॒त स्मा॑स्य पनयन्ति॒ जना॑ जू॒तिं कृ॑ष्टि॒प्रो अ॒भिभू॑तिमा॒शोः।
उ॒तैन॑माहुः समि॒थे वि॒यन्तः॒ परा॑ दधि॒क्रा अ॑सरत्स॒हस्रैः॑॥९॥

9. The people praise the swiftness of this fleet Steed who giveth men abundance.

Of him they say when drawing back from battle. Dadhikras hath sped forward with his thousands.

The people praise the swiftness of the *Dadhikra*-life energy as fleet steed. He gave many things in abundance. It has been said that when the life energy withdrawn back from the battle, at the same time the life energy sped forward with his thousands in its various forms. The people think that enemies have been killed. It has been indicated that life energy is eternal by saying-*Dadhikras hath sped forward with his thousands.*

आ द॑धि॒क्राः शव॑सा॒ पञ्च॑ कृ॒ष्टीः सूर्य॑इव॒ ज्योति॑षा॒पस्त॑तान।
स॒ह॒स्र॒साः शं॑त॒सा वा॒ज्यर्वा॑ पृ॒णक्तु॒ मध्वा॒ समि॒मा वचां॑सि।।१०।।

10. Dadhikras hath o'erspread the Fivefold People with vigour, as the Sun lightens the waters,

May the strong Steed who winneth hundreds, thousands, requite with sweetness these my words and praises.

It has been said that *Dadhikras*- life energy has been spread over the fivefold people. It means over five types of the living-beings as a vigorous courser. The living-beings have been classified in to the five types of animals in general. They act as food material for each other as a part of nature. The life energy has been compared with the evaporation of water, it has been indicated by *the Sun lightens the water with rising of the sun.*

It has been indicated that life energy move from the body just like the evaporation of water. It has been prayed that the strong steed-life energy, who is the winner of obstacles in the battle of life, may accept my prayers with return of blessings and sweetness in life.

f. Stallion Dadhikrāvan– life energy in the human body

After indicating that life energy has spread over in the living-beings. The *Dadhikra*-life energy has been praised as *Stallion Dadhikrāvan*, which is the dwelling place of life energy in the physical human body in an advanced form.

आ॒शुं द॑धि॒क्रां तमु॒ नु ष्ट॑वाम दि॒वस्पृ॑थि॒व्या उ॒त च॑र्किराम।
उ॒च्छन्ती॒र्मामु॒षसः॑ सूद॒यन्त्वति॒ विश्वा॑नि दु॒रिता॑नि पर्षन्।।१।।

1. Now give we praise to Dadhikras the rapid, and mention in our laud the Earth and Heaven.

May the Dawn flushing move me to exertion, and bear me safely over every trouble. (4-XXXIX-1)

The Earth and Heaven have been addressed. Now we will praise *Dadhikra*-life energy loudly with rapid mention of his name with praise. He may bear us and grant safety from all the troubles.

म॒हश्च॑र्क॒र्म्य॑र्वतः क्र॒तु॒प्रा द॑धि॒क्राव्णः॑ पुरु॒वार॑स्य॒ वृष्णः॑।
यं पू॒रुभ्यो॑ दीदि॒वांसं॒ नाग्निं द॒दथु॑र्मित्रावरुणा॒ तत॑ुरिम्।।२।।

2. I praise the mighty Steed who fills my spirit, the Stallion Dadhikrāvan rich in bounties,

Whom, swlft of foot and shining bright as Agni, ye, Varuṇa and Mitra, gave to Purus.

I praise the mighty steed– life energy, who fills my spirit. The stallion *Dadhikrāvan* is rich and kind, he is swift and shining bright as *Agni*. It has been indicated with praise of life energy that life energy is swift Courser and kind. He is like *Agni*-energy, which was granted by *Mitra and Varuṇa to Puruṣa*-fundamental energy.

It has been indicated that life energy exists in the body just like mighty steed, which fill up the body with spirit. The *Dadhikrāyan*-life energy carries it forward like a stallion. The life energy is shining in the body like *Agni* through metabolic energy. It was given *by Mitra and Varuṇa to Puruṣa*-fundamental energy.

The *Varuṇa* represent mass energy and *Mitra,* represents visible light, they together with actions and interactions have generated the fundamental energy in the cell. It has been given by *Mitra and Varuṇa to Puruṣa*-fundamental energy. It has been indicated by-*Whom, swlft of foot and shining bright as Agni, ye, Varuṇa and Mitra, gave to Puruṣa.*

यो अश्व॑स्य दधि॒क्राव्णो॒ अका॑री॒त्समि॑द्धे अ॒ग्ना उ॒षसो॒ व्यु॑ष्टौ।
अना॑गसं॒ तमदि॑तिः कृणोतु॒ स मि॒त्रेण॒ वरु॑णेना स॒जोषाः॑।।३।।

3. Him who hath honoured, when the flame is kindled at break of dawn, the Courser Dadhikrāvan,

Him, of one mind with Varuṇa and Mitra may Aditi make free from all transgression.

It has been said that *Dadhikrāvan should be honoured, when flame is kindled at the break of Dawn,* the *Dadhikrāvan*-Courser. It means just like the day is kindled with sunrise, in the same fashion with birth the *Dadhikrāvan*-Courser appear with life in the body. The life energy carries forward the body towards its end, just like the day move forward towards sun set.

It has been indicated that with the birth the life energy has been associated with the physical body-*Varuṇa*-mass energy and *Mitra*-light energy. In the body they are working together as of one mind in the nature. Hence it has been prayed that may *Aditi*-nature make free from transgression. It has been indicated by-*Him, of one mind with Varuṇa and Mitra may Aditi make free from all transgression.*

द॒धि॒क्राव्णं॑ इ॒ष ऊ॒र्जो म॒हो यदम॑न्महि म॒रु॒तां नाम॑ भ॒द्रम्।
स्व॒स्तये॒ व॑रुणं मि॒त्रम॒ग्निं हवा॑मह॒ इन्द्रं॒ वज्र॑बाहुम्।।४।।

4. When we remember mighty Dadhikrāvan our food and strength, then the blest name of Maruts,

Varuṇa, Mitra, we invoke for welfare, and Agni, and the thunder-wielding Indra.

How the human body is moving forward towards its course of life? It has been expressed that when we remember mighty *Dadhikrāvan*- life energy as our food and strength in the body. Then the best name to bless us is *Maruts*- rain water, it means along with life energy, *Marut*- water must be remembered. It means the water is the source of life energy. The streaming of the sap in the body is the source of life. They have been invoked for long life along with *Varuṇa*- mass energy of the cells, *Mitra*-light, *Agni*- metabolic energy and *Indra*- electical charge of the ions. They manage the body functions. It has been indicated–*Varuṇa, Mitra, we invoke for welfare, and Agni, and the thunder-wielding Indra.*

इन्द्र॑मि॒वेदु॒भये॒ वि ह्व॑यन्त उ॒दीरा॑णा य॒ज्ञमु॑पप्र॒यन्त॑ः।
द॒धि॒क्रामु॒ सूद॑नं॒ मर्त्या॑य द॒दथु॑र्मित्रावरुणा नो॒ अश्व॑म्।।५।।

5. Both sides invoke him as they call on Indra when they stir forth and turn to sacrificeing.

To us have Varuṇa and Mitra granted the Courser Dadhikras, a guide for mortals.

They-mortals, invoke from both sides in every manner *Indra,* when they turn towards sacrifice. It means during the origin of life energy, the mortal inorganic charged ions-positive and negative have initiated the actions and interactions. They call on *Indra,* it means they under go oxidation and reduction with their opposite charges. It has been indicated by *when they stir forth and turn to sacrificing,* both sides invoke *Indra.*

It has been said that *Dadhikras*-Courser is like a guide for the mortals during the journey of their life. It had been granted by *Varuṇa and Mitra* as Courser-*Dadhikras.*

The *Varuṇa* represent mass energy of the inorganic substances and *Mitra represent*-visible light, they have generated the initial conditions for the origin of life energy. It has been indicated by saying that *To us have Varuṇa and Mitra granted the Courser Dadhikras*- life- energy.

द॒धि॒क्राव्णो॑ अकारिषं जि॒ष्णोरश्व॑स्य वा॒जिन॑ः।
सु॒र॒भि नो॒ मुखा॑ कर॒त्प्र ण॒ आयूं॑षि तारिषत्।।६।।

6. So have I glorified with praise strong Dadhikrāvan, conquering Steed.

Sweet may he make our mouths; may he prolong the days we have to live.

I have glorified with praise the strong *Dadhikrāvan-life energy*–winning steed in the race of life, he may grant us sweet tongue and long life.

Dadhikrāvan

द॒धि॒क्राव्ण॒ इदु॒ नु च॑र्किराम॒ विश्वा॒ इन्मामु॒षस॑ः सूदयन्तु।
अ॒पाम॒ग्नेरु॒षस॒ः सूर्य॑स्य॒ बृह॒स्पते॑राङ्गि॒रसस्य॑ जि॒ष्णोः।।१।।

1. Let us recite the praise of Dadhikrāvan: may all the Morning move me to exertion;

Praise of Lord of Waters, Dawn, and Agni, Bṛhaspati Sons of Angirasa, and Sūrya.

Let us praise *Dadhikrāvan:-* life energy in the body that he may inspire us to work all the morning. It means with birth, during the course of life, *Dadhikrāvan* may give us vitality for work with good health. It has been indicated by saying *may all the Morning move me to exertion;*

The praise of lord of waters, *Dawn, and Agni, Bṛhaspati, Sons of Āṅgirasa, and Sūrya.* It has been indicated that *Dadhikrāvan:-* life energy in the body is the lord of them. Their functions in the body are due to the life energy, although they are life resources.

सत्वा॑ भरि॒षो ग॑वि॒षो दु॑वन्य॒सच्छ्र॑व॒स्यादि॒ष उ॒षसं॑स्तुरण्य॒सत्।
स॒त्यो द्र॒वो द्र॑व॒रः पं॑तङ्ग॒रो दं॑धि॒क्रावे॒षमूर्जं स्व॑र्जनत्।।२।।

2. Brave, seeking war and booty, dwelling with the good and with the swift, may he hasten the food of Dawn.

May he the true, the fleet, the lover of the course, the bird–like Dadhikrāvan, bring food, strength, and light.

The life energy has been termed as brave, seeking war and booty as a warrior, during the course of life cycle. The life energy may accelerate the production of food material as indicated by *may he hasten the food of Dawn.* It means the development of the cellular body is due to the presence of life energy in the body, which carries forward the body towards its destiny in the nature as a warrior. The development and synthesis in the body is his booty during the war of life. The inter acts with others as a good and swift.

The food of Dawn, it means, birth of the physical body is like Dawn- sun rise, just like the day move forward towards sun set and sun accelerate the movement of the day towards sun set. In the same fashion, life energy, accelerate the development of the body with nourishment towards its end in the nature. It has been indicated by *food of Dawn.*

The life energy has been described as true, fleet and lover of the course. It means the life energy-*Dadhikrāvan*, dwelling in the body carries forward it on the path of life. During the journey, the life energy is the lover of body, which is bird like in nature. It has been prayed that the life energy may feed us with food, strength and light. It means the functions of the body are due to the life energy– *Dadhikrāvan.*

The birth of the body with life energy has been indicated through the metaphors.

उत स्मास्य द्रवतस्तुरण्यतः पर्णं न वेरनु वाति प्रगर्धिनः।
श्येनस्येव ध्रजतो अङ्कसं परि दधिक्राव्णः सहोर्जा तरित्रतः।।३।।

3. His pinion, rapid runner, fans him on his way, as of a bird that hastens onward to its aim,

And, as it were a falcon's gliding through the air, strikes Dadhikrāvan's side as he speeds on with might.

The life energy has been described metaphorically as rapid runner on the path of life with his pinion and fans. They carry forward him with speed, it means the pinion is the symbol of food inhalation and fans- rapidly carry him with speed on the path of life with nourishment. It is just like a bird flying rapidly towards his destination.

During the journey, when the life energy moving rapidly towards its destination in the nature, it is just like falcon, who is gradually coming down and some one strikes to bring him in a specific position. Similarly the natural factors, strikes *the Dadhikrāvan-life energy* in the body from all sides to check his speed with aging. It has been indicated by *strikes Dadhikrāvan's side*- the path of life energy.

With birth the body move forward rapidly towards maturity and old age. It has been indicated metaphorically through the falcon.

उत स्य वाजी क्षिपणिं तुरण्यति ग्रीवायां बद्धो अपिकक्ष आसनि।
क्रतुं दधिक्रा अनु संतवीत्वत्पथामङ्कांस्यन्वापनीफणत्।।४।।

4. Bound by the neck and by the flanks and by the mouth, the vigorous Courser lends new swiftness to his speed.

Drawing himself together, as his strength allows, Dadhikras springs along the windings of the paths.

It has been indicated that the life energy is bound in the body, through neck, flanks and by the mouth. It means the existence of the life energy in the body depends on the food, he eat by mouth and neck, with the development of the body.

They represent symbols of nourishment, through which the body became healthy. They bound the life energy in the body. With the food *the vigorous Courser- Dadhikrāvan-* life energy has new swiftness and speed. They work together in the body up to certain limit, up to which the life energy allows the body to exhibit its functions. Then the *Dadhikras-* life energy move rapidly towards its destiny in the nature with winding up its ways through aging of the concern organs.

It has been indicated that life energy bound in the body through nourishment, and the life energy disappear gradually with aging by- *Drawing himself together, as his strength allows, Dadhikras springs along the windings of the paths.*

ह॒ंसः शु॑चि॒षद्व॑सुरन्तरिक्ष॒सद्धोता॑ वेदि॒षदति॑थिर्दुरोण॒सत्।
नृ॒षद्व॑र॒सदृ॑त॒सद्व्यो॑म॒सद॒ब्जा गो॒जा ऋ॑त॒जा अ॑द्रि॒जा ऋ॒तम्।।५।।

5. The Haṁsa homed in light, the Vasu in mid-air, the priest beside the altar, in the house the guest,

Dweller in noblest place, mid men, in truth, in sky, born of flood, kine, truth, mountain, he is holy law.

The life energy been described metaphorically as like a *Haṁsa* homed in the light, the *Vasu* in mid air, and a priest beside the altar.

It means the life energy is like a *Haṁsa,* dwelling in the light, he is like *Vasu* in the air and just like priest beside the altar. Their respective places are known with their functions. In the same fashion the body is known with life energy, he is a guest dwelling in the body.

The life energy has been described as holy law, dwelling in noblest places, in men, in truth, in kine and the mountains. Due to the life energy, the sky has its existence, *born of floods*. It indicates that the creation came in to the existence from the clouds of fundamental charged particle. They spread in the different directions like floods, due to this the creation has came in to the existence.

Through this it has been indicated that the creation has came into the existence from the fundamental energy through the floods of fundamental particles. He is dwelling at all places. It has been expressed by saying that he is holy law.

3. Genetics–Tvaṣṭā–Cow omniform

a. Modern concept

All the living creatures exhibit the same functions at the cellular level, such as energy transformation, growth and reproduction. In all the living beings RNA-Ribose Nucleic Acid or DNA-De-oxy Ribose Nucleic Acid is the main genetic material. The DNA decides the course of life. The credit for discovering the De-oxy Ribose Nucleic Acid goes to the Watson and Crick, it has brought a revolution in the field of biotechnology.

In the biology it is a known fact that in the human beings there are 23 pairs of chromosomes. The one pair *xx, or xy*, decides the gender and one pair of the chromosome has the information for the life and death. It regulates the life through the Genetic hereditary characters. The chromosomes consist of DNA. A characteristic feature of the DNA is the fixed content and sequence of nucleotide pairs along the entire length of its double helix. In this respect any one species of DNA differ from the other species. Accordingly the species diversity is there in the nature with different hereditary characters. A definite number of nucleotides constitute a gene, which have the information about the synthesis of specific kind of the proteins and the enzymes, they regulate the metabolic reactions.

The DNA has only four types of bases Adenine, Guanine, Thymine and Cytosine. They are arranged on the DNA spiral strips in different sequences. The two base Adenine and Guanine are known as purine and two base Thymine and Cytosine are known as pyrimidine. The purine and pyrimidine are complimentary with each other, such as Adenine = Thymine and Guanine ≡ Cytosine and vice versa. These complimentary bases are bind with each other by hydrogen double bond and triple bond. The sequence of three bases, called a triplet known as codon. The four kinds of bases in the DNA constitute 64 triplet codes. It is known as genetic code, which is a code for amino acid and constitute a language code for the protein synthesis. The DNA through transcription synthesise messenger Ribose Nucleic Acid-mRNA and mRNA through translation synthesise proteins.

b. Vedic Knowledge

The first cell has been synthesized in the seawater and has been termed as *Ṛbhu* and the life energy as Steed.

यदक्रं॑न्दः प्रथ॒मं जाय॑मान उ॒द्यन्त्स॑मु॒द्रादु॒त वा॒ पुरी॑षात्।
श्ये॒नस्य॑ प॒क्षा ह॑रि॒णस्य॑ बा॒हू उ॑प॒स्तुत्यं॒ महि॑ जा॒तं ते॑ अर्वन्।।१।।

1. What time, first springing in to life, thou neighedst, proceeding from the sea or upper waters,

Limbs of the deer hadst thou, and eagle pinions, O steed, thy birth is high and must be louded. (Ṛg.1-163-1)

It has been asked that at what time the *Ṛbhu* has sprang in to life, the answer has been given that life has originated first in sea or in upper water. The life energy is having a speed like an eagle or Deer. The birth of life is very high, it must be loudly welcome.

य॒मेन॑ द॒त्तं त्रि॒त ए॑नमायु॒नगिन्द्र॑ एणं प्रथ॒मो अध्य॑तिष्ठत्।
ग॒न्ध॒र्वो अ॑स्य रश॒नाम॑गृभ्णा॒त्सूरा॒दश्वं॑ वसवो॒ निर॑तष्ट।।२।।

2. This steed which, Yama gave hath Trita harnessed, and him, the first of all, hath Indra mounted.

His bridle the Gandharva grasped. O Vasus, from out the Sun ye fashioned forth the Courser. (Ṛg.1-163-2)

It has been expressed that the Steed of life is Trita harnessed, which has been given by Yama, it is an indication towards the three stages of life– childhood, young and old age. The Yama represents chromosome, the chromosomes have the information for the development of the physical body, as such it has been said that it has been given by Yama, the life has been first mounted by Indra. The Indra represent electricity, in the early stages due to the movements of the charged particles in the developing coaservates, the life energy has been generated, hence it has been said that Indra has mounted first. It has been grasped by Gandharva as bridle, the Gandharva represents visvous mass of protoplasm, due to the streaming movements of the protoplasm life energy has its existence in the cell, when streaming get blocked, the life energy disappear, hence it has been said that the life energy has been grasped by the Gandharva as bridle, where bridle is metaphor for the life energy. O Vasus, it is an expression for the abiotic substances, which have synthesized the *Ṛbhu-* cell in the water first, The sun is the main energy source on the earth, hence it has been said that the Courser- the cell has been fashioned by the sun.

असि॑ य॒मो अस्या॑दि॒त्यो अ॑र्व॒न्नसि॑ त्रि॒तो गुह्ये॑न व्र॒तेन॑।
असि॒ सोमे॑न स॒मया॒ विपृ॑क्त आ॒हुस्ते॒ त्रीणि॑ दि॒वि बन्ध॑नानि॥३॥

3. Yama art thou, O horse; thou art Āditya; Trita art thou by secret operation.

Thou art divided thoroughly from Soma. They say thou hast three bonds in heaven that hold thee. (Rg.1-163-3)

Yama art thou, O horse; thou art Āditya; Trita art thou by secret operation. Due to the vigorous nature of the *Ṛbhu*-cell in the nature, the *Ṛbhu* has been called as Steed metaphorically, which is taking part in the creation sacrifice, it came in to the existence from the Yama- chromosome and due to the twelve Āditya- twelve months under temperature pressure gradient, hence it has been said that thou art Yama, thou art Āditya, Trita art thou by secret operation,- ii indicate about the synthesis of *Ṛbhu-* cell due to the Triple bond of the nucleotide pairs of the DNA. The genetic material, DNA (Deoxy Ribose Nucleic Acid) has the information for the synthesis and it bears the hereditary characters to synthesize the cell in nature.

Thou art divided thoroughly from Soma, it means the whole synthesis is due to the Soma- magnetic energy, they say thou hast three bonds in heaven, which hold thee, it means Ozone layer in the atmosphere, which absorbs the ultra violet Rays and due to which life is present on the earth.

त्रीणि॑ त आहुर्दि॒वि बन्ध॑नानि॒ त्रीण्य॒प्सु त्रीण्य॒न्तः स॑मु॒द्रे।
उ॒तेव॑ मे॒ वरु॑णश्छन्त्स्यर्वन्यत्रा॑ त आहुः प॑र॒मं ज॒नित्र॑म्॥४॥

4. Three bonds, they say, thou hast in heaven that bind thee, three in the waters, three within the ocean.

To me thou seemest Varuṇa, O Courser there where they say is thy sublimest birth place. (Rg.1-163-4)

It has been expressed that *Ṛbhu*-cell has three bonds in heaven, it represents ozone layer in the atmosphere, due to the presence of Ozone layer in the upper atmosphere life is present on the earth, because the Ozone layer absorbs the high energetic Ultraviolet Rays, and only visible light come on the earth's surface, three bonds in the water, it means two hydrogen and a single bond of oxygen, which form the water, the water is a life resource for the *Ṛbhu*- cell, three bonds within the ocean, it means in the ocean of life, the Trita triple bond of the nucleotide pair on the DNA strips is main source of the development.

c. The Tvaṣṭā- DNA Deoxy Ribose Nucleic Acid

The living cell has been termed as *Ṛbhu*, nucleus as *Bṛhaspati*, chromosomes as *Yama*, genetic material as *Tvaṣṭā* and *Vivasvata*.

The structure of DNA (Deoxy Ribose Nucleic Acid) has been expressed symbolically, through association and interrelationships of the different forms with one another. Their relationship has been expressed through the family relationship as parents, mother, father, wife, son and daughter. The union has been indicated through *Aśvin.* They represent a nucleotide pair of DNA. The 64 codes may constitute a language code for recording the thoughts and deeds of an individual. The language code is imperishable and get stimulated by the enzymes.

त्वष्टा॑ रू॒पाणि॒ हि प्र॒भुः प॒शून्विश्वा॑न्त्समा॒नजे। तेषां॑ नः स्फा॒तिमा य॑ज।।९

Tvaṣṭā the lord hath made all forms and all the cattle of the field:
Cause them to multiply for us. (Ṛg.1-188-9)

The DNA has been termed as *Tvaṣṭā*, he is shaper of all creatures with multiplication. It has been termed as omni form (*Visvarupa*), it means the DNA is present in all the living beings.

For Tvaṣṭā, he who knows each sacred song, brought thee to life, preeminent o'er all the things that be.

Guilt-avanger is Brhaspati, who slays the spoiler and upholds the mighty law. Ṛg. 2-23-17.

विश्वेभ्यो हि त्वा भुवनेभ्यस्परि त्वष्टाजनत्साम्नःसाम्नः कविः।
स ऋणचिदृणया ब्रह्मणस्पतिर्द्रुहो हन्ता मह ऋतस्य धर्तरि।।१७।।

The DNA, synthesize the chromosomes and the chromosomes synthesize the nucleus. It has been said that *Tvaṣṭā* begot *Bṛhaspati.* The *Bṛhaspati represent nucleus,* it has been expressed as regulator and guide.

अति द्रव श्वानौ सारमेयौ चतुरक्षौ शबलौ साधुना पथा।
अधा पितृन्त्सुविदत्राँ अपीहि यमेन ये सधमादं मदन्ति।। ११।।

Run thou past the two four eyed, brindled dogs of Sarama, by a happy road; then go unto the beneficent Fathers, who revel in common revelry with Yama. (Atharvaveda,18-2-11)

What two defending dogs thou hast, O Yama, four eyed, sitting by the road, men watching, with them, O king, do thou surround him; assign to him well being and freedom from disease. (Atharvaveda,18-2-12)

The structure of the DNA has been indicated symbolically through *Yama* (chromosome). The *Yama's* two brindled dogs four eyed watch the path of man, it means they represents two helix of the DNA and the four eyes represents two base pairs. They watch the path of man. It means the life of an individual get regulated by the information, which is there in the coded language of the DNA. It has been said that O king of life *Yama*-chromosome, guide him for well being and freedom from disease. It means all information about the life is in the chromosomes.

Broad nosed, feeding on lives, copper coloured, Yama's *two messengers go about after men (*jana*); let them give us back here today excellent life (*asu*) to see the sun.* (Atharvaveda, 18-2-12)

यौ ते श्वानौ यम रक्षितारौ चतुरक्षौ पथिषदी नृचक्षसा।
ताभ्यां राजन् परि धेह्येनं स्वस्त्यस्मा अनमीवं च धेहि।। १२।।

It has been indicated that *Yama's two messengers go about after men.* The two messengers are two strips of DNA. They through the hereditary characters regulate the physical development of the body. The DNA records the deeds of an individual in its language code, the language go about after a man. It means after the death of an individual, the language code of his deeds is imperishable, which give him back life through opening of the same language code on the duplicating DNA in the womb. Accordingly development of the body is according to the hereditary characters. The thought energy of previous birth through the language of the DNA decides the course of life.

d. Aśvin- Nucleotide pair

Language of the DNA decides the course of life. Simultaneously the deeds of an individual get recorded in the coded language of the DNA with birth.

The DNA consists of nucleotide pairs, which are united with each other through the hydrogen bonds. The nucleotide pair has been expressed as *Aśvin*, they are united on the two strips of DNA. Hence *Aśvin*-nucleotide pair has been expressed as two mothered son.

याभिः परिज्मा तनयस्य मज्मना द्विमाता तूर्षु तरणिर्विभूषति।
याभिस्त्रिमन्तुरभवद्विचक्षणस्ताभिरू षु ऊतिभिरश्विना गतम्।।४।।

The aids wherewith the Wandere, through his offspring's might, or the Two Mothered Son shows swiftest mid the swift.

Wherewith the sapient one acquired his triple lore,- Come hither unto us, O Aśvins, with those aids.

The Aśvin represents the nucleotide pair. (Ṛg. 1-CXII-4)

आ वां रथो अश्विना श्येनपत्वा सुमृळीकः स्ववाँ यात्वर्वाङ्।
यो मर्त्यस्य मनसो जवीयान्त्रिवन्धुरो वृषणा वातरंहाः।।१।।

Flying with falcons, may your chariot, Aśvins, most gracious, bringing friendly help, come hither,–

Your chariot, swifter than the mind of mortal, fleet as the wind, three seated, O ye mighty. (Ṛg. 1-CXVIII-1)

The *Aśvin* represents nucleotide pairs of DNA. The chariot is DNA, they bring friendly help with duplication. They divide very rapidly, hence it has been said that their speed is like falcon and swifter than the mind of mortals. They regulate the metabolism through the genetic triplet code. It has been indicated by three seated.

द्वे विरूपे चरतः स्वर्थे अन्यान्या वत्समुप धापयेते।
हरिरन्यस्यां भवति स्वधावाञ्छुक्रो अन्यस्यां ददृशे सुवर्चाः।।१।।

5. To fair goals travel Two unlike in semblance: each in succession nourishes an infant.

One bears a God like Babe of golden colour; bright and fair-shining is he with the other. (Ṛg.1-95-1)

The function of the DNA and its duplication in the cell is due the complimentary base pairs. The two base Adenine and Guanine are known as purine and two base Thymine and Cytosine are known as pyrimidine. The purine and pyrimidine are complimentary with each other; such as Adenine = Thymine and Guanine ≡ Cytosine and vice versa. They speed up the process of duplication. It has been indicated by *Aśvin*-union of two, where each pair in succession nourishes with synthesis. Hence it has been said that they nourishes the infant.

दशेमं त्वष्टुर्जनयन्त गर्भमतन्द्रासो युवतयो विभृत्रम्।
तिग्मानीकं स्वयशसं जनेषु विरोचमानं परि षीं नयन्ति।।२।।

7. Tvaṣṭā's ten daughters, vigilant and youthful, produced this Infant borne to sundry quarters.

They bear around him whose long flames are pointed, fulgent among mankind with native splendour. (Ṛg.1-95-2)

The function of the oxidation and reduction has deeply concern with the DNA. It has been indicated through *Tvaṣṭā's* ten daughters, these are the two-double bond and two-triple bond of hydrogen of the four nucleotide pairs of DNA. They are vigilant and youthful, they produces the new DNA as infant.

e. Role of Trita-Triple bond

सनेम ये त ऊतिभिस्तरन्तो विश्वाः स्पृध आर्येण दस्यून्।
अस्मभ्यं तत्त्वाष्ट्रं विश्वरूपमरन्धयः साख्यस्य त्रिताय।।१९।।

May we gain wealth, subding with thy succour and with the Arya, all our foes, the Dasyu.

Our gain was that to Trita of our party thou gavest up Tvaṣṭā's son Visvarupa. (Ṛg. 2-11-19)

The synthesis of DNA and its duplication is mainly dependent on its triple hydrogen bond. It has been indicated through *Trita*-Triple bond. The knowledge of *Trita*-triple bond and its function, it has established that *Tvaṣṭā*- DNA acts in the nature through *Trita*. It is the source of DNA duplication with metabolic products as wealth. Due to the DNA duplication, all the living beings have genetic material– DNA (De-oxy Ribose Nucleic Acid) or RNA (Ribose Nucleic Acid). It has been indicated by *Tvaṣṭā's son Visvarupa* omni form.

त्वष्टा॒ यद्वज्रं॒ सुकृ॑तं हिर॒ण्ययं॑ स॒हस्र॑भृष्टिं॒ स्वपा॒ अव॑र्तयत्।
ध॒त्त इन्द्रो॒ नर्यपां॑सि॒ कर्त॒वेऽह॑न्वृ॒त्रं निर॒पामौ॑ब्जदर्ण॒वम्।।९।।

4. When Tvaṣṭā deft of hand had turned the thunderbolt, golden with thousand edges, fashioned more skillfully,

Indra received it to perform heroic deeds. Vṛtra he slew, and forced the flood of water forth. (Ṛg.1 -85-9)

The triple and double hydrogen bonds play a major role in the synthesis of mRNA and DNA duplication. It has been expressed by the *Trikadruka (=, ≡).*

The electro magnetic bond energy exhibit the function through the formation and breaking of the bonds. It has been indicated by turning the thunderbolt and *Indra* received it to perform heroic deeds. It has been indicated by *Indra received it to perform heroic deeds. Vrtra he slew, and forced the flood of water forth.*

He slew the *Vrtra* and released the flood of water. It means the *Indra* has released the obstacles of DNA duplication with breaking of the bonds with hydrolysis.

त्रि॒व॒न्धु॒रेण॑ त्रि॒वृता॒ रथे॑न त्रिच॒क्रेण॑ सु॒वृता या॑तम॒र्वाक्।
पिन्व॑तं॒ गा जिन्व॑त॒मर्व॑तो नो व॒र्धय॑तमश्विना वी॒रम॒स्मे।।२।।

Come to us with your chariot triple seated, three wheeled, of triple form, that rolleth lightly. (Ṛg.1-CXVIII-2)

The double helical structure of DNA is the chariot of *Aśvin,* where nucleotides are arrange in triplets. They constitute triplet genetic codes, hence they are triple seated. The triple seat represents triplet code. The three wheeled, it means the base sequence is repeated with triplets and it has three forms in the nature. The *Aśvin*-nucleotide pairs are the source of food, courage and strength. It has been indicated metaphorically– *Fill full our cows, give mettle to our horses, and make each hero son grow strong, O Aśvins.*

त्वष्ट्रा॒ वासो॒ व्य॒दधाच्छु॒भे कं बृह॒स्पते॑ः प्र॒शिषां॑ कवी॒नाम्।
तेने॒मां नारीं॑ सवि॒ता भगं॑श्च सू॒र्यामि॑व॒ परि॑ धत्तां प्र॒जया॑॥५३॥

Tvaṣṭā disposed (vi-dha) the garment for beauty, by direction of Bṛhaspati, of the poets; therewith let Savitā Sand Bhaga envelop this woman, like Sūrya, with progeny. (Ath.,14-1-53)

It has been expressed that due to the DNA. The living beings have different forms. The Bṛhaspati-nucleus regulates the functions of the DNA. The bhag– photosynthetic product and the Savitā– enzymes, they are associated with the function of the DNA. It has been indicated by– envelope this woman– DNA template with new forms– progeny.

त्वष्टा॑ दुहि॒त्रे व॑ह॒तुं कृ॑णोति॒ तेने॒दं विश्वं॒ भुव॑नं॒ समे॑ति।
य॒मस्य॑ मा॒ता प॑र्यु॒ह्यमा॑ना म॒हो जा॒या विव॑स्वतो ननाश॥५३॥

Tvaṣṭā *makes a wedding-car for his daughter; by reason of this, all this creation comes together; the mother of Yama, wife of great Vivasvant, being drawn about, disappeared.* (Ath. 18-1-53)

Tvaṣṭā makes a wedding-car for his daughter; by reason of this, all this creation comes together. The wedding car represents DNA. The daughter represents DNA template. The mother of *Yama*, it means the DNA template synthesize the new DNA and Chromosomes. The wife of great *Vivasvata*, it means the DNA template synthesize the new DNA *Vivasvata*. The synthesis of the complimentary base pairs of the new DNA has been expressed in this fashion "*having made one of like color, they gave her to Vivasvata*"

अपा॑गूहन्न॒मृतां॒ मर्त्ये॑भ्यः कृ॒त्वा सव॑र्णामदधु॒र्विव॑स्वते।
उ॒ताश्विना॑वभर॒द् यत् तदासी॒दजहादु॒ द्वा मि॑थु॒ना स॑र॒ण्यूः॥ ३ ३॥

They hide away the immortal (biosoul) one from mortals; having made one of like color, they gave her to *Vivasvata*; what that was carried also the two *Aśvins* and *Saraṇyu* deserted two twins (Pair of chromosomes). (Atharvaveda, 18-2-33)

The Tvaṣṭā- DNA synthesize new DNA from the DNA template, the same has been termed as the bridal car. The single strand of the DNA template has been termed as the daughter of *Tvaṣṭā*, the new DNA has been termed as *Vivasvaṭa*. They have been synthesized from the DNA template. The wife- DNA template lost the identity due to the synthesis [illegible] new DNA or mRNA. Hence it has been said that his wife *Saraṇyu* daughter of *Tvaṣṭā* get disappear. It means the daughter represents the DNA template and after the synthesis of the mRNA or DNA. The old DNA lost its identity. It has been expressed metaphorically.

He is the father of *Aśvin* (nucleotide pair) it means *Aśvin* represent nucleotide pairs, which get synthesized from the DNA template. He is the father of *Yama-Yamī* (Twinned pair of chromosome) It means chromosomes get synthesized from the DNA., it has been indicated by saying that *Saraṇyu* deserted two twins. The formation of the chromosome pair has been indicated symbolically.

He is the father of *Manu*-human race, which signifies that DNA is responsible for the evolution of the human species

The activity of the DNA has been indicated through *Trikadruka (=, ≡),* who represents a triple bond and a double bond of hydrogen, through which the complimentary base pairs get joined with each other. *'The six wide ones'* represents the three base pairs. '*The verily great one*' it indicates a triplet language code on the DNA template. The language of the DNA has been indicated through the *tristup, Gāyatrī* and the meters: all those (are) set in *Yama*, it means the information is in the chromosome.[1]

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[1] With *Trikadrukas* it purifies itself six wide ones verily great one; *triṣṭubha, gāyatrī*, the meters: all those (are) set in *Yama*. (Ath. 18-2-6)

The triple and double hydrogen bonds play a major role in the synthesis of mRNA and DNA duplication. It has been expressed by the *Trikadruka (=, ≡)* and the electrostatic charge play its role with the help of magnetic energy through the formation and breaking of the bonds. It has been indicated by asking *Indra to drink Soma,* which is a heroic act of the *Indra.*[1]

He slew the Vṛtra and release the water during the reaction,[2]

The reactions are reversible and operate in succession with oxidation and reduction.[3]

The well organized system of DNA duplication is due to the triple bond, which has been indicated by Trita.[4]

A single loop of DNA has four base pairs, having two, double bond and two, triple bond, its total is ten. It has been indicated by *Tvstr*'s ten daughters.[5]

Originally the DNA has only four types of base, the three bases constitute a genetic code means a code for an aminoacid for the synthesis of protein, there are 64 codes. In the Vedas the triplet genetic code has been termed as three headed demon or

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[1] Upon the great *Trikadruka* days, Hero, rejoicing thee, O Indra, drink the Soma.
Come with Bays of steeds to drink of libation, shaking the drops from out they beard contented. (Rg. 2-11-17)
In the *Trikadrukas,* he drank the Soma : then in its rapture Indra slew the Dragon. (Rg.2-15-1)

[2] When Tvaṣṭā deft of hand had turned the thunderbolt, golden with thousand edges, fashioned more skillfully,
Indra received it to perform heroic deeds. Vṛtra he slew, and forced the flood of water forth. (Rg.1 -85-9)

[3] To fair goals travel Two unlike in semblance : each in succession nourishes an infant.
One bears a God like Babe of golden colour; bright and fair-shining is he with the other. (Rg.1-95-1)

[4] May we gain wealth, subding with thy succour and with the Arya, all our foes, the Dasyu.
Our gain was that to Trita of our party thou gavest up Tvaṣṭā's son Viśvarūpa. (Rg.2-11-19)

[5] Tvaṣṭā's ten daughters, vigilant and youthful, produced this Infant borne to sundry quarters.
They bear around him whose long flames are pointed, fulgent among mankind with native splendour. (Rg.1-95-2)

Trisīrṣa, the son of *Viśvarūpa* (omniform) *Tvaṣṭā*. Till the triplet code is in association with the DNA, it is inactive.

In the nature, one of the strand of the DNA act as a template for the synthesis of mRNA in the presence of the enzyme DNA polymerase. 'It has the coded genetic information for the protein synthesis. The base sequence in the mRNA is complimentary to the base sequence of parent DNA. The synthesis of mRNA for the protein synthesis is its active productive power, which initiates the protein synthesis. The same has been expressed through *Trita*-triple bond, which is the slaughter of the three headed, six eyed demon (three complimentary base pairs). (Ṛg.10-99-6)

स इ॒द्दासं॑ तु॒वीरवं॒ पति॒र्दन्ष॑ळ॒क्षं त्रि॑शी॒र्षाणं॑ दमन्यत्।
अ॒स्य त्रि॒तो न्वोज॑सा वृधा॒नो वि॒पा व॑रा॒हमयो॑अग्रया हन्।।६।।

Lord of the dwelling, he subdued the demon who roared aloud, six eyed and triple headed.

Trita made stronger by the might he lent him, struck down the boar with shaft whose poison was iron. (Ṛg.10-99-6)

भूरीदिन्द्र॑ उ॒दिन॑क्षन्त॒मोजोऽवा॑भिन॒त् सत्प॑ति॒र्मन्य॑मानम्।
त्वा॒ष्ट्रस्य॑ चि॒द्विश्व॑रूपस्य॒ गोना॑माचक्रा॒णस्त्रीणि॑ शी॒र्षा परा॑ वर्क्।।९।।

Lord of the brave Indra *cleft him in pieces, who sought to gain much strength and deemed him mighty. He smote his three heads from his body seizing the cattle of the omniform* Tvaṣṭā. (Ṛg. 10-8-9).

It means the DNA is strong due to the hydrogen triple bond. It has been broken by the charged activity of *Indra* with removal of a triplet code. Accordingly, it has opened the door for the synthesis of new DNA. The new DNA has been termed as the cattle of *Tvaṣṭā.* It has been indicated by– *He smote his three heads from his body seizing the cattle of the omni form Tvaṣṭā.*

स पि॒त्र्याण्यायु॑धानि वि॒द्वानिन्द्रे॑षित आ॒प्त्यो अ॒भ्य॑युध्यत्।
त्रि॒शी॒र्षाणं॑ स॒प्तर॑श्मिं जघ॒न्वान्त्वा॒ष्ट्रस्य॑ चि॒न्निः सं॑सृजे त्रि॒तो गाः।।८।।

Well skilled to use the weapons of his father Āptya urged on by Indra fought the battle then Trita slew the foe seven rayed three headed and freed the cattles of the son of Tvaṣṭā. (Ṛg.10-8-8)

The release of the cattle, it signifies the productivity of the mRNA. They take part in the protein synthesis through genetic code. The weapon of the *Trita* is bond energy. The formation or removal of the bond operates with the help of electrical charge- *Indra* and *Āptya*– water. The separation of triplet code is due to the hydrolysis of water with the breaking of the two double and a single triple bond of hydrogen, it has been termed as– seven rays. The same has been expressed.

य॒मः परोऽव॑रो॒ विव॑स्वा॒न् तत॒ः पर॒ं नाति॑ पश्यामि॒ किं च॒न।
य॒मे अ॑ध्व॒रो अधि॑ मे॒ निवि॑ष्टो॒ भुवो॒ विव॑स्वान॒न्वात॑तान॥ ३२॥

Yama *beyond, below Vivasvān– beyond that do I see nothing whatever; into* Yama *has entered my sacrifice; Vivasvān stretched after the worlds (bhu).* (Atharvaveda 18-2-32)

It has been indicated that in the biological world, which is before us. I see nothing beyond Vivasvān– DNA, from him Yama chromosomes have been synthesized. It has entered into me as chromosome. The Vivasvān– DNA has stretched in the world in the form of food chains and the food webs. It has been indicated.

4. Photo-synthesis– Wedding of Aryaman

The photosynthesis has been described, through the metaphor of the marriage in the wedding hymns :

Marriage is a unique event in the life of a human being. With marriage a young girl under go a transformation. She enters in to a new house as a wife with her husband so as to produce off-spring. In the same way transformation of the light energy in to the chemical energy through photosynthesis lead it to produce assimilated carbon- glucose and the products of the glucose are its off-springs. The ceremonies and the hymns of the marriage reveal the secret of the whole process of the photosynthesis. It has been described in a symbolic fashion.

The sun's wheel is its bridal car. The journey of the sun rays has been expressed by- the sun is coming to give his daughter to her husband. The seven visible rays are the seven sisters and *Narāśaṁsa* is her younger sister. It means short blue wavelength of light .The *Aryaman* is long red wavelength of light. They are important for the light reaction. The husband's house is a cell, where she is going to enter as a wife to unite with her husband carbon (CO_2). The formation of the assimilated carbon represents union of the light energy and carbon.

The assimilated carbon is the source of off-springs (products). The house where she is going to produce progeny is guarded by *the Soma*– magnetic energy, *Mitra*– light, *Varuṇa*– gravity and *the Indra*– electrical energy. The *Tvaṣṭā*– DNA assist her to produce *Viśvarūpa*– (The various forms of the living beings) (Ṛg.10.85, Ath. 14-1 and 2). Importance of the chlorophyll has been discussed under the name of *Avi*-protector and *Parṇa-maṇi in the Ath*arva-veda.. In the *Ṛgveda*, its presence has been indicated under the name of *Bhṛgu.*

The deity, Avi *by name, sits enveloped with right; by her form these trees are green garlanded.* (Atharvaveda X-8-31) [1]

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[१] अवि॒र्वै नाम॑ दे॒वत॒र्तेना॑स्ते॒ परी॑वृता। तस्या॑ रू॒पेणे॒मे वृ॒क्षा हरि॑ता॒ हरि॑तस्रजः॥३१॥

As twere some goodly treasure Mātariśvan *brought as a gift to* Bhṛgu. (Rg. 1- LX-1)[1]

The *Mātariśvan* (CO_2) has brought down from heaven to earth, which is a gift to *Bhṛgu* (chlorophyll), it means the gift is for photosynthesis.

It reflects about the knowledge and importance of the chlorophyll and the carbon dioxide for the living beings.

a. Soma-Magnetic energy

The wedding hymn, start with the indication that under the cosmic principles the *Soma* is set in the sky. Due to the *Soma* sun has been established in the sky. Due to the *Soma* the *Ādityas*–planets are strong and earth is mighty; like wise in the midst of asterism *Soma* has been placed. It has been also indicated that *Soma* is not a plant or moon but an energy, which no one ever tastes. *The soma* represents magnetic energy. According to the principles of modern Astronomy, the magnetic energy can be generated due to the movements of the electrons in side an atom and in all the Astronomical bodies. They are moving at their axis, as due to the movement at their axis, a dynamo is being developed in their center. Due to this all the rotating Astronomical bodies have their own magnetic field and the magnetosphere around them. The position and the importance of the sun, earth and other planets in the universe are due to their magnetic field and the magnetosphere. The interplanetary space is filled with the interplanetary magnetic field, along with this due to the movements of electrons around the nucleus in an atom magnetic energy gets generated. It become associated with the electrostatic energy of the nucleus and produces the bond energy. It binds the atom and molecules through bonds. In the living beings due to the streaming movements of the protoplasm, the magnetic energy generates, it is responsible for the origin of life. Hence it has been expressed that *Soma* (magnetic energy) is present every where. Accordingly in the wedding hymn first of all *Soma* has been appreciated. It has been said that *Soma* is the bride seeker. It is due to the presence of *Soma* in the living cells. It is also the house in which the sun's light energy is going to enter for the transformation. The presence of magnetosphere around the planets has been indicated in (Atharvaveda XIV-1-5).

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[1] वह्निं॑ य॒शसं॑ वि॒दथ॑स्य के॒तुं सु॑प्रा॒व्यं॑ दू॒तं स॒द्योअ॑र्थम्।
द्वि॒जन्मा॑नं र॒यिमि॑व प्रश॒स्तं रा॒तिं भ॑र॒द्भृग॑वे मात॒रिश्वा॑।।१।।

स॒त्येनोत्त॑भिता॒ भूमि॒ः सूर्ये॒णोत्त॑भिता॒ द्यौः।
ऋ॒तेना॑दि॒त्यास्ति॑ न्ति दि॒वि सोमो॒ अधि॑ श्रि॒तः॥ १॥

1. By truth is the earth established (ut-stabh); by the sun is the sky established; by righteousness the Ādityas stand; Soma is set (crita) upon the sky.

It has been indicated that the planets of the Solar system have been established in the sky due to the *Soma*- magnetic energy.

सोमे॑नादि॒त्या ब॒लिन॒ः सोमे॑न पृथि॒वी म॒ही।
अथो॒ नक्ष॑त्राणामे॒षामु॒पस्थे॒ सोम॒ आहि॑तः॥ २॥

2. By Soma are the Ādityas strong; by Soma is the earth great; likewise in the lap of these asterisms is Soma placed (a-dha).

Due to the presence of the *Soma*-magnetic energy, the planets are strong in the same *fashion the asteroids have Soma-magnetic energy.*

सोमं॑ मन्यते पपि॒वान् यत् सं॑पि॒षन्त्योष॑धिम्।
सोम॒ं यं ब्र॒ह्माणो॑ वि॒दुर्न तस्या॑श्नाति॒ पार्थि॑वः॥ ३॥

3. One thinks himself to have drunk Soma when they crush up an herb; what Soma the priests (brahman) know, of that no earthly man partakes.

It has been said that people take *Soma* juice, which has been prepared by crushing an herbaceous plant, but the *Soma*-magnetic energy, which is known to the *Brāhmaṇa*- intellectuals, people do not know about it.

यत् त्वा॑ सोम प्र॒पिब॑न्ति॒ तत॒ आ प्या॑यसे॒ पुन॑ः।
वा॒युः सोम॑स्य रक्षि॒ता समा॑नां॒ मास॒ आकृ॑तिः॥ ४॥

4. When, O Soma, they drink thee (up), then thou fillest thyself up *again; Vayu is Soma's defender; the month is norm (ākṛti) of the years (sama).*

When the people take the *Soma* juice, they feel, full of *Soma.* It means *Soma*-magnetic energy is also present in the plants, which they feel. The *Soma* is defender of Air, similarly the twelve months constitute the year. It has been indicated by; *the month is norm (ākṛti) of the years (sama).*

It means *Soma*- magnetic energy influences the weather through twelve months of the year.

आच्छद्विधानैर्गुपितो बार्हतैः सोम रक्षितः।
ग्राव्णामिच्छृण्वन् तिं सि न तैं अश्नाति पार्थिवः॥५॥

5. Guarded by covering-arrangements, defended by watchmen (?? bārhata), O Soma, thou standest hearing the pressing-stones; no earthly one partakes of thee.

It has been expressed that *Soma*- magnetic energy is hidden under the coverings such as magnetosphere around the planets. The cell membrane, cell wall of the plant cell or skin in the animals, they acts like watch man, it has been indicated by *Guarded by covering-arrangements, defended by watchmen (?? bārhata*. The people have no knowledge of it.

The journey of the solar rays from the sun to the earth's surface has been indicated through *raibhi* and *gātha*.

When, Sūrya went to her husband, the wheel of the sun is its bridal car. The solar flares have been described as *the Sūrya's* excellent garment. As and when the solar wind passes through the sky, the high energetic solar wind wave makes noise. The movement of the solar particles looks like that as if they are dancing. Vedic seers have expressed the same through *raibhi* and *gātha.* The *Narāśaṁsa*– younger sister, it represents a short blue wavelength of light Ṛg. 10- 85-6. Ath XIV-1-17. *Aryaman* is long red wavelength of light. *The Aryaman* is husband finder bride.

अर्यमणं यजामहे सुबन्धुं पतिवेदनम्।
उर्वारुकमिव बन्धनात् प्रेतो मुञ्चामि नामुतः॥१७॥

We make offering to Aryaman of good connections, husband-

finder; like a gourd from its bond, from here I release, not from yonder. (Ath. XIV-1-17)

Brides-men, Aśvin represents electromagnetic rays. The Agni–heat energy has been described as the forerunner, Savitā is stimulator. It means the temperature-pressure gradient stimulates the process.

The separation of the magnetic energy from the electromagnetic energy has been expressed by saying that *I release thee from here just like a gourd is separated from the bond.*

मनो॑ अस्या॒ अन॑ आसी॒द् द्यौरा॑सीदु॒त च्छ॒दिः।
शु॒क्राव॑न॒ड्वाहा॑वास्तां॒ यदया॑त् सू॒र्या पति॑म्॥ १०॥

Mind was her cart ; heaven also was [its] canopy ; the two draft-oxen were white (śukra), when Sūrya went to her husband. (Ath. XIV-1-10)

It is the indication of the white visible light, as and when the sun rays reaches on the earth they have white colour.

चित्ति॑रा उ॒पबर्ह॑णं॒ चक्षु॑रा अ॒भ्यञ्ज॑नम्।
द्यौर्भूमि॒ः कोश॑ आसी॒द् यदया॑त् सू॒र्या पति॑म्॥ ६॥

6. Intention (citti) was the pillow, sight was the ointment, heaven [and] earth were the coffer (koca), when Sūrya went to her husband.

The journey of the solar rays from Sun to earth has been indicated metaphorically through the marriage in a symbolic fashion by saying, when *Sūrya* went to her husband, where heaven and earth are the places, which bear the sun rays. The marriage is a symbolic expression for the energy transformation.

रैभ्या॑सीदनु॒देयी नाराशं॒सी न्योच॑नी।
सू॒र्याया॑ भ॒द्रमिद् वासो॒ गाथ॑यैति॒ परि॑ष्कृता॥ ७॥

7. The raibhi was the parting [song] (?? Anudeyi), the nārāśansī was the welcoming one (?Nyocanī); Sūrya's garment verily was excellent; she goes adorned with song (gātha).

The sun rays coming from the solar flares, they make noise like songs and their vibrations are like as if they are dancing. It has been indicated by *raibhi and gātha*. The solar rays have different wavelengths, these different wavelengths have been indicated by *Anudeyi, Nārāśaṅsī, Nyocanī*, these are the different wavelengths of light, the bright solar flares have been indicated by saying that *Sūrya's* garment verily was excellent.

स्तोमा॑ आसन् प्रति॒धय॑ः कु॒रीरं॒ छन्द॑ ओप॒शः।
सू॒र्याया॑ अ॒श्विना॑ व॒राग्निरा॑सीत् पुरोग॒वः॥८॥

8. The laudations (stoma) were the cross-pieces (?? Pratidhi); meter was the kurīra, the opaśa; of Sūrya the Aśvins were the wooers, Agni was the forerunner.

It has been indicated that when sun rays travel through the space. *The Aśvins were wooers*, it means the sun rays travel in the form of electromagnetic energy with high heat as forerunner.

सोमो॑ वधू॒युर॑भवद॒श्विना॑स्तामु॒भा व॒रा।
सू॒र्यां यत् पत्ये॒ शंस॑न्तीं॒ मन॑सा सवि॒ताद॑दात्॥९॥

9. Soma was the bride-seeker; both Aśvins were wooers, when Savitā gave to her husband Sūrya, praising (cans) with her mind.

It has been expressed that when the *Soma*- magnetic energy under go transformation, it is just like bride seeker. *The Aśvin* represents electromagnetic rays, *Savitā* is stimulator, who stimulate it through temperature pressure gradient and the speed of the rays is just like the speed of mind.

मनो॑ अस्या॒ अन॑ आसी॒द् द्यौरा॑सीदु॒त च्छ॒दिः।
शु॒क्राव॑न॒ड्वाहा॑वास्तां॒ यदया॑त् सू॒र्या पति॑म्॥१०॥

10. Mind was her cart; heaven also was [its] canopy; the two draft-oxen were white (śukra), when Sūrya went to her husband.

It has been indicated that when sun rays travel in the space from sun to earth, their speed is like the speed of mind, the visible light is white (śukra), and the sky is like his canopy.

b. Ozone layer

The sun rays travel from the sky to the earth. The ultra-violet rays have been absorbed by the ozone layer in the upper atmosphere. This fact has been indicated through asking a question to *Aśvin*.

यद॑श्विना पृ॒च्छमा॑ना॒वया॑तं त्रिच॒क्रेण॑ वह॒तुं सू॒र्याया॑:।
क्वैकं॑ च॒क्रं वा॒॑मासी॒त् क्व॒ देष्ट्राय॑ तस्थथुः॥ १४॥
द्वे ते॑ च॒क्रे सूर्ये॑ ब्र॒ह्माण॑ ऋतु॒था वि॑दुः।
अथैकं॑ च॒क्रं यद् गुहा॒ तद॑द्धा॒तय॒ इद् वि॒दुः॥ १६॥

"with your three wheeled chariot, to Sūrya's bridal. Where was one wheel of yours" (Ath XIV-1-14,16)

"The two wheels of thee, O Sūrya, the priests know, the one wheel that is in secret – that verily, the enlightened know."

The course of the solar rays from the sky to earth is being completed in three steps. It has been designated here as three wheels. The first step is in the sky, where sun rays generates due to the nuclear reactions at the surface of the sun. The second step is sun's visible light on the earth's surface. These are the two common and the third invisible step is in the atmosphere, where ozone layer absorbs the toxic Ultra Violet rays. The same has been indicated as the one wheel that is in secret.

11. Haltered with verse (ic) and chant (saman), thy two oxen went peaceful (?samana); ears were thy (two) wheels; in the sky the wandering track.

It has been said that during the journey of the solar rays. In the two regions heaven and earth, the journey is the same. It has been indicated by two wheels.

12. Clean were the (two) wheels of thee as thou wentest; out-breathing (vyāna) was the instered axle; a cart made of mind did Sūrya ascend when going forth to her husband.

It has been indicated that when the rays travel from sun to the earth, the two wheels- it means in the two regions, the rays have white colour. It has been indicated by saying *Clean were the (two) wheels of thee as thou wentest* . The speed of the rays is like the speed of mind.

13. The bridal (vahatu) of Sūrya, which Savitā sent off (ava-srj), has gone forth; in the Māghas are slain the kine; in the Phālgunis is the wedding.

It has been indicated that during the journey of the solar rays. The rays, which are send by *Savitā*– stimulator, under the temperature pressure gradient, than the rays gradually come in the state of transformation. It has been indicated by the months- *Māgha and Phālguna*. They indicate the proper state of transformation through the symbolic expression of season of these two months.

14. When, O Aśvins, ye went asking, with your three-wheeled [chariot], to Sūrya's bridal, where was one wheel of yours? Where stood ye for pointing out?

It has been asked to the *Aśvins*- electromagnetic rays that during the course of solar rays from heaven to earth. Where was your one wheel? The solar rays have short wave length, long wave lengths and visible light, when the rays enter in to the earth's atmosphere. It has visible long wave lengths of light and the short wavelengths. The ultra violet rays are absorbed by the ozone layer in the middle atmosphere. It has been indicated by asking, where was one wheel of yours?

15. When ye went, O lords of beauty, unto the wooing of Sūrya, all the gods assented to that [deed] of yours ; Puṣan as son chose a father.

When the beautiful sun rays became ready for transformation, the natural forces assist and the *Pūṣan*- nourish them is just like a son, they have chosen a father in the form of chemical energy. It is due to the fact that chemical energy feed the creation through the photosynthesis.

16. The two wheels of thee, O Sūrya, the priests (brāhmaṇa) know seasonally; further, the one wheel that is in secret– that, verily, the enlightened (addhati) know.[1]

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[1] ऋ॒क्सा॒माभ्या॑म॒भिहि॑तौ॒ गावौ॑ ते सा॒मना॒वै॑ताम्।
श्रोत्रं॑ ते च॒क्रे आ॑स्तां दि॒वि पन्था॑श्चराच॒रः॥ ११॥
शुची॑ ते च॒क्रे या॒त्या व्या॒नो अक्ष॒ आह॑तः।
अनो॑ मन॒स्मयं॑ सू॒र्यारो॑हत् प्र॒यती पति॑म्॥ १२॥
सू॒र्याया॑ वह॒तुः प्रागा॑त् सवि॒ता यम॒वासृ॑जत्।
म॒घासु॑ ह॒न्यन्ते॒ गाव॒ः फल्गु॑नीषु॒ व्यु॑ ह्यते॥ १३॥
यद॑श्विना पृ॒च्छमा॑नावया॑तं त्रिच॒क्रेण॑ वह॒तुं सू॒र्यायाः॑।

It has been said that the two wheels of the solar rays in the heaven and earth are known to the common people but the one wheel is in secret. It means the station in the atmosphere, where ultra violet rays are absorbed by the ozone layer. It is known to only enlightened persons.

After the absorption of the UV Rays by the Ozone layer, the visible light, which is important for the photosynthesis enters in to the earth's atmosphere. It has been indicated by saying that *Aryaman* Red wavelength of light is husband finder. It has been addressed to the long red wavelength of light that watch thou over this house (cell) for housewife-ship. I release thee like a gourd from its bond. It means the visible light unaffected safely cross the ozone layer.

c. Aryaman– Long red wave length of light

17. We make offering to Aryaman of good connections, husband-finder; like a gourd from its bond, from here I release, not from yonder.

Symbolically it has been indicated that electromagnetic ray of sun light, which is ready for transformation, it has been termed as *Aryaman* and metaphorically as husband finder. The release of the rays from the ozone layer has been indicated by saying that I release thee not from yonder but I release thee like a gourd from the stalk after maturity.

18. I release [her] from here, not from yonder; I make her well-bound yonder, that she, O gracious Indra, may be rich in sons, well-portioned.

It has been said that with the release of the visible light from the ozone layer. The visible light is ready for the transformation without any change in its form so as to synthesize the cell products just like her progeny.

क्वैकं चक्रं वामासीत् क्व देष्ट्राय तस्थुः॥ १४॥
यदयातं शुभस्पती वरेयं सूर्यामुप।
विश्वे देवा अनु तद् वामजानन् पुत्रः पितरमवृणीत पूषा॥ १५॥
द्वे ते चक्रे सूर्ये ब्रह्माण ऋतुथा विदुः।
अथैकं चक्रं यद् गुहा तदद्धातय इद् विदुः॥ १६॥

19. I release thee from Varuṇa's fetter, with which the very propitious Savitā bound thee; in the lair (yoni) of righteousness, in the wooer- (sambhala).

The sun rays are in the form of electromagnetic rays. It is the magnetic energy, which under go transformation. It has been indicated by *I release thee from Varuṇa's fetter, with which the very propitious Savitā bound thee.* The *Savitā* bind it as electromagnetic energy.

20. Let Bhaga lead thee hence, grasping thy hand; let the Aśvins carry thee forth by a chariot; go to the houses, that mayest be housewife; thou, having control, shalt speak unto the council.

Symbolically in an anthropomorphic manner, it has been indicated that the *Bhag-* photosynthetic pigment grasp it, the ray is on the chariot of *Aśvin-* it means the electromagnetic ray, which lead it up to the place of transformation. It has been addressed to the long red wavelength of light that watch over the place within the pigment, where after the biochemical reaction, the chemical energy will react with carbon and the carbon products will be synthesized. It has been indicated by the house-wife-ship as controller of the family. The chemical energy regulates the cellular metabolism. It has been indicated symbolically through its *control over the place and speak unto the council,* it is just like the function of a housewife.

d. Light Reaction

The photosynthesis has two main reactions, the light reaction and dark reaction. It is during the light reaction that the sunlight (long red wavelength of light) is converted in to the chemical energy with the help of chlorophyll (photosynthetic pigments). The *Bhag* represents photosynthetic pigment, which leads the *Aryaman* (long red wavelength of light) for the union. The place where the light energy is going to enter is the cell. It has been addressed to the light energy that *"watch thou over this house in order to housewife-ship; mingle thyself with this husband for thy progeny"* (Ath.XIV-1-21). The light energy (long red wave length of light) is bride and carbon dioxide is bridegroom, addressing to them it has been said *that "ye (two) just here; be* *not separated; attain your whole life-time sporting with sons and grandsons"* (Ath-XIV-1-22). The sons and grand sons are symbolic expressions for the products of the assimilated carbon. The journey of the assimilated carbon in the living beings has been expressed by *" these two move one after the other by magic these two sporting young ones"* (Ath. XIV-1-23,24) *by their own power the twain in close succession move; they go as playing children round the sacrifice* (actions and interactions in a cyclic manner) (Ṛg.10-LXXXV-18a). It means these two carbon and chemical energy move in succession one after the other.

21. Let what is dear succeed (sam-ṛdh) here for thy progeny; watch thou over this house in order to housewife-ship; mingle thyself (tanu) with this husband; then shalt thou in advanced age speak to the council.

It has been said to the long red wave length of light in an anthropomorphic fashion that *watch over this house*– the place of transformation. After the transformation in to the chemical energy, the chemical energy is within the glucose– assimilated carbon. It has been indicated metaphorically by *that mingle thyself with this husband*– carbon in order to housewifeship. *So as to speak in the council in the advanced stage,* it means after this the chemical energy will act accordingly for the synthesis of carbon products in the nature.

22. Be ye (two) just here; be not separated; attain your whole life-time, sporting with sons [and] grandsons, rejoicing, well-homed.

It has been addressed to the carbon-glucose with chemical energy in a symbolic fashion, *that you two travel simultaneously playing with the sons and grandsons.* It is a metaphor for the products of the assimilated carbon in a symbolic fashion.

23. These two move on one after the other by magic; two sporting young ones go about the ocean; the one looks abroad upon all beings; thou, the other, disposing the seasons art born new.

It has been indicated that assimilated carbon-glucose along with chemical energy enter in to the metabolic reactions one after the other in to the ocean of the living-beings. The one looks abroad upon all beings, it means chemical energy move in to the living beings as one and the carbon of the glucose acquire different shapes under seasonal variations having new forms.

24. Ever new art thou, being born; sign of the days, thou goes to the apex of the dawns; thou disposest to the gods their share as thou comest; thou extendest, O moon, a long life-time.[1]

It has been indicated that with the birth, the glucose with the development of the cellular body reaches to its climax with the end of life. It disposes the shares of the natural forces with decomposition. It has been indicated through *the apex of dawn*, which is a symbolic expression for the end of life, it means just like the day end with the sunset, in the same manner the cellular body reach to its end. It has been prayed that moon may grant a long life time, the moon represent the movement, it means for the long life function of the chemical energy in the body has been desied.

25. "One of the pair beholdeth all existing things; the other ordereth seasons and is born again" (Ṛg.10- LXXXV-18b).

One of the par holds all existing things. It has been indicated that the existence of the living beings in the creation is due the assimilated carbon. The pair of the assimilated carbon has chemical energy, the other one is the product of the photosynthesis organic carbon (glucose). They under go the biochemical reactions under the seasonal variations. The organic carbon acquires different forms and shapes again and again. It has been indicated by; *the other ordereth seasons and is born again*. Again it has been said that *with its formation it became new and new from morning to evening and disposes shares of Gods (natural components)*. It means the organic carbon of the glucose is the source of the different organic substances, it became new

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१. इ॒ह प्रि॒यं प्र॒जायै॑ ते॒ समृ॑ध्यताम॒स्मिन् गृ॒हे गार्ह॑पत्याय जागृहि।
ए॒ना पत्या॑ त॒न्व॑१ं सं स्पृ॑शस्वा॒थ जिर्वि॑र्वि॒द॒थ॒मा व॑दासि॥२१॥
इ॒हैव स्तं॒ मा वि यौ॑ष्टं॒ विश्व॒मायु॒र्व्य॒श्नुतम्।
क्रीड॑न्तौ पु॒त्रैर्नप्तृ॑भि॒र्मोद॑मानौ स्वस्त॒कौ॥२२॥
पू॒र्वा॒प॒रं च॑रतो मा॒ययै॒तौ शिशू॒ क्रीड॑न्तौ॒ परि॑ यातोऽर्ण॒वम्।
विश्वा॒न्यो भुव॑ना वि॒चष्ट॑ ऋ॒तूँर॒न्यो वि॒दध॑ज्जायसे॒ नव॑:॥२३॥
नवो॑नवो भवसि॒ जाय॑मा॒नोऽह्नां॑ के॒तुरु॒षसा॑मे॒ष्यग्र॑म्।
भा॒गं दे॒वेभ्यो॒ वि द॑धास्या॒यन् प्र च॒न्द्रमस्तिरसे दी॒र्घमायु॑:॥२४॥

and new with synthesis of different metabolic products. They reach to their respective places as food. The products of the cell with decomposition in the nature, disposes the shares of the natural forces. It has been indicated by– *thou disposes to the gods their share as thou comes; thou extends, O moon, a long life-time.*

Through the moon, it has been indicated that the assimilated carbon, under go reactions rapidly like a moon, the assimilated carbon is the source of long life. (Ṛg.10- LXXXV-19, Ath IV-1-24)

e. Electron Transfer

During the light reaction chlorophyll molecules absorbs photons (quanta) and become excited. It means the molecules with more energy than the ground state energy. The excess energy absorbed by the chlorophyll molecule is passed on to one of its electron, which is consequently raised to a higher energy level. The high energetic electron is than expelled from the chlorophyll with excess energy, such electron have a very short life. They do not immediately participate in the photochemical reaction they loss their energy partly as heat and partly as radiation as fluorescence or phosphorescence (energy transfer in steps). As a result due to the loss of some of the energy as heat the electron will fall to meta-triplet state. It is the activated triplet state of the electrons by virtue of their longer life. They can most easily be involved in the photochemical reaction known as photo-phosphorylation and the electron will return to the ground state. During this journey of the electron, it losses its excess energy thrice, first from the excited singlet state to the 2nd excited singlet state. This state can also be obtained by the absorption of blue light but such electrons have very short life. Again it losses its energy as heat to give electrons at the first excited singlet state, this state can also be obtained when chlorophyll absorbs red light. Such electrons are also short lived and under go internal conversion, they reach to the meta-triplet state and get involved in to the photochemical reaction. Up to this state the excited electrons losses the excess energy thrice hence the ray has been termed as thrice purified.

The excess energy has been indicated through a metaphor of a garment, which has been infected by the witchcraft. So it has been said that before entering the house as a wife give away garment (*Śāmulya)*. The importance of the blue and the red light for the photosynthesis has been indicated that it is blue-red when witchcraft's infection is driven away. It means excited electron loss some of its energy as heat and become blue- red, which is 2nd excited and 1st excited state of the electron respectively.

If the husband wraps his body with *śāmulya* then his body becomes unpleasant. It means excited electrons with excess energy are harmful. The sunrays are having different wavelengths of light. They release their excess energy in steps through phosphorescence. (Ath.XIV-1-28)

The high intensity of light is like a harsh barbed poison, the priest *brahmā* who know *sūrya*. He indeed deserves the bride's garment, who verily takes the garment and bride remains unharmed. (Ath. XIV-1-29 & 30)

It has been indicated here that excess energy- *śāmulya*, when released in the steps then the released energy can be accepted by *the brahmā*- ADP and ATP (Adenosine Tri Phosphate) get synthesized through the photo-phosphorylation.

Than the excited electrons move from the pigment system Ist to pigment system- IInd.

25. Give thou away the śāmulya; share out goods to the priests (brahmā); it, becoming a walking (padvant) witchcraft enters the husband [as] a wife.

How the light reaction operates? It has been indicated by the removal of *śāmulya;* it represents the excess energy of the long red wave length of light. It is harmful like witchcraft's infection due to the excess energy.

26. It becomes blue-red; [as] witchcraft, infection, it is driven away (?); her relations (jñati) thrive; her husband is bound in bonds.

It has been indicated that in the first step with the release of excess energy. The light energy became blue and red and the wavelength of light is ready for the biochemical reaction to react with carbon.

27. Unlovely becomes [his] body, glistening in that evil way, when the husband wraps his own member with the bride's garment.

It has been indicated that if the light energy enters as such, without release of excess energy. It is injurious for the system.

28. Carving on, carving open, also cutting over apart; see the forms of Sūrya; them also the priest (brahmā) cleans (cumbh).

It has been expressed that visible sunlight has different wavelengths. They are also useful with the release of excess energy through resonance transfer. It has been indicated by *them also the priest (brahmā) cleans (cumbh).*

29. Harsh is that, sharp, barbed, poisoned; that is not to be eaten; what priest (brahmā) knows Sūrya, he indeed deserves the bride's [garment].

It has been indicated that the high energetic rays are harmful like poison. The electron acceptors play their role like priest and the excess energy can be grasped by the electron acceptor.

30. That priest verily takes this garment, pleasant, well-omened, who goes over the expiation, by whom the wife takes no harm.[1]

Accordingly the electron acceptor accepts the excess energy. Due to this the ray became suitable for the biochemical reaction without harm.

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१. परा देहि शामुल्यं ब्रह्मभ्यो वि भजा वसु।
कृत्यैषा पद्वती भूत्वा जाया विशते पतिम्॥ २५॥
नीललोहितं भवति कृत्यासक्तिर्व्यज्यते।
एधन्ते अस्या ज्ञातयः पतिर्बन्धेषु बध्यते॥ २६॥
अश्लीला तनूर्भवति रुशती पापयामुया।
पतिर्यद् वध्वो३ वाससः स्वमङ्गमभ्यूर्णुते॥ २७॥
आशसनं विशसनमथो अधिविकर्तनम्।
सूर्यायाः पश्य रूपाणि तानि ब्रह्मोत शुम्भति॥ २८॥
तृष्टमेतत् कटुकमपा वद् विषवन्नैतदत्तवे।
सूर्यां यो ब्रह्मा वेद स इद् वाधूयमर्हति॥ २९॥
स इत् तत् स्योनं हरति ब्रह्मा वासः सुमङ्गलम्।
प्रायश्चित्तिं यो अध्येति येन जाया न रिष्यति॥ ३०॥

The importance of the chemical energy has been expressed in the succeeding stanza. It has been prayed to the *Brahamaṇaspati* (nucleus) that the chemical energy with her husband assimilated carbon. The two may proceed on a successful path and the organic-glucose may shine for the chemical energy as carbon products. It has been prayed that the environmental factors may favour them.

By saying that "*now I remove the glistening seizor, body spoiling; that I draw up*". (Ath.XIV-1-38) It means that now the excited electrons are ready for the biochemical reaction. For the light reaction the water molecule is important, its importance has been expressed in this fashion "*He who shines without fuel within the waters, whom the devout praise at the sacrifices (Adhvara) O child of the waters, mayest thou give waters rich in honey, with which Indra increased, full heroism.*" (Ath. XIV-1-37) In this verse latent energy of the water has been indicated. The *Indra* represents the electricity, the electric energy with its two charges help in the photolysis of water (H+ + OH-). In the nature with this the exited chlorophyll molecule of the pigment system 2nd reached to the ground state by receiving the electron from the water through photolysis. It has been expressed as the heroic act of the *Indra* (the electricity). In the nature it is related with the short blue wavelength of light, and the non cyclic photo-phosphorylation. Than the electrons moves towards the Ist exited state. It is the seat of the long red wavelength of light. The fact has been indicated by saying "*Let the Brahmiṇa take for her (water) for bathing; let them draw waters that slay not a hero; let her go about the fire of Aryaman* (long red wave length of light)", here the photolysis of the water has been indicated and than the electrons move towards the next state. The same is the fire of *Aryaman* and the Meta-triplet state. In this way the biochemical reaction begins. The same has been described as "*O thou of hundred activities, having thrice purified Apala*", (up to this state the excited electrons have released their energy through phosphorescence thrice. Hence the excited electrons are thrice purified. As suggested by Arnon (1954) "*O Indra, thou didst make her sun skinned*", *the term 'sun skinned' has been used for* *the chemical energy and has been expressed in the next verse that "becoming obedient to thy husband, gird thy self in order to immortality".* With the formation of the glucose molecule the chemical energy acquire different forms and remains active as immortal. The immortal nature of the chemical energy has been expressed. Through the anabolic and catabolic reactions in the living beings, it moves in to the food chains and food webs in the nature and remains active as immortal. The glucose is the primary source of the food material, which is the source of complex carbon skeleton of all the living beings. They form complex food webs and food chains in the ecosystem, the same has been indicated through a question that "*They who spun, wove and who stretched the web, what divine one gave the ends about, let them wrap thee in order to old age one long lived put this garment assimilated carbon (glucose).*" Through the garment formation of the assimilated carbon has been indicated.

31. Do ye (two) bring together a successful (samṛddha) potion, speaking right in right-speakings; O Brāhmaṇaspati, make the husband shine (ruc) for her; let the wooer (sambhala) speak this speech agreeably (cāru).

It has been indicated that the two chemical energy and carbon are together constitute a reach matter. They react under the direction of the nucleus– *Brāhmaṇaspati* and the carbon products proliferate with it.

32. May ye be just here; may ye not go away; may ye, O kine, increase this man with progeny; going unbeauty, ruddy, with soma-splendor– may all the gods turn (kra) your mind hither.

It has been said that the glucose-carbon and its frame work increases in the nature through kine and the natural forces.

33. May ye, O kine, enter this man together with progeny ; this man minisheth (mi) not the share of the gods; for this man shall Pūṣan, and all the Maruts, for this man shall Dhātā, Savitā quicken (su) you.

It has been indicated that in the nature this man-assimilated carbon increases like progeny. Without this the natural forces can not get the share.

It has been indicated that the natural forces like *Maruts*- clouds, Pūṣan- nourishing sun rays, *Dhātā*- sustainer, *savitā*- stimulator. They are working in the nature due to the assimilated carbon. It means the importance of the photosynthesis for the nature and its relation with it has been indicated.

34. Free from thorns, straight, let the roads be by which [our] comrades go a-wooing for us; together with Bhaga, together with Aryaman– let Dhātā unite [us] with splendour.

It has been indicated that for the union of chemical energy and carbon. The *Bhaga*- photosynthetic pigment and *Aryaman*- red wavelength of light are important. They act under the *Dhātā*- sustainer. The products of the assimilated carbon, they move in to the food webs and food chains like comrades- friends.

35. Both what splendor is placed in dice, and what in strong drink– what splendor, O Aśvins, is in kine, with that splendor favor (av) ye this woman.[1]

It has been indicated that whatever is present on the earth or in the kine or dice, it is due to the chemical energy.

36. With what [splendor] the backsides of the courtezan (mahanagni), O Aśvins, or with what the strong drink, with what the dice were flooded (abhi-sic), with that splendor favor ye this woman.

It has been indicated that behind the *courtezan– mahāagni*, *Aśvins*– nucleotide pairs or strong drink- the chemical energy is in the background, they all are working for the chemical energy.

[१.] युवं भगं सं भरतं समृद्धमृतं वदन्तावृतोद्येषु।
ब्रह्मणस्पते पतिमस्यै रोचय चारु संभलो वदतु वाचमेताम्॥ ३१॥
इहेदसाथ न परो गमाथेमं गावः प्रजया वर्धयाथ
शुभं यतीरुस्रियाः सोमवर्चसो विश्वे देवाः क्रन्निह वो मनांसि॥ ३२॥
इमं गावः प्रजया सं विशाथायं देवानां न मिनाति भागम्।
अस्मै वः पूषा मरुतश्च सर्वे अस्मै वो धाता सविता सुवाति॥ ३३॥
अनृक्षरा ऋजवः सन्तु पन्थानो येभिः सखायो यन्ति नो वरेयम्।
सं भगेन समर्यम्णा सं धाता सृजतु वर्चसा॥ ३४॥
यच्च वर्चो अक्षेषु सुरायां च यदाहितम्।
यद् गोष्वश्विना वर्चस्तेनेमां वर्चसावतम्॥ ३५॥

f. Photolysis of water

37. He who shines (di) without fuel within the waters, whom the devout (vipra) praise at the sacrifices (adhvara)– O child of the waters, mayest thou give waters rich in honey, with which Indra increased, full of heroism.

It has been indicated that the water has latent energy, the child of waters represents H+ and OH- ions, they provide honey like rich ions of water, where *Indra*– electromagnetic energy play its role in a heroic manner fully.

38. Now do I remove (apa-uh) the glistening seizer (grabha), body-spoiling; what sheen is excellent, that I draw up (ud-ac).

With the photolysis of water, the red wave length of electromagnetic energy enters in to the biochemical reaction with release of excess energy. It has been indicated by saying that now I remove the glistening seizer (grabha), body-spoiling.

39. Let the Brāhmaṇs take for her [water] for bathing; let them draw up (?) waters that slay not a hero; let her go about the fire of Aryaman, O Pūṣan; father-in-law and brother-in-law are looking on.

It has been indicated about the biochemical reaction that prior to the biochemical reaction before the photolysis of water. The *Pūṣan*-sun rays under go transformation in to red wavelength of light *Aryaman*. It has been indicated by saying *let her go about the fire of Aryaman.*

40. Weal be to thee gold, and weal be waters; weal be the post (methi), weal the perforation (tardman) of the yoke ; weal be for thee the waters having a hundred cleaners (pavitra); for weal, too, mingle thyself with thy husband.

It has been prayed that the natural forces and factors may be helpful for the photosynthesis- wedding of *Aryaman*. The union has been indicated by saying *mingle thyself with thy husband.*

41. In the hole of the chariot, in the hole of the cart, in the hole of the yoke, O thou of a hundred activities, having thrice purified Apala, O Indra, thou didst make her sun-skinned.

It has been indicated that the red wavelength of light, when it enters into the biochemical reaction, it release its excess energy thrice, accordingly the electromagnetic ray has been expressed as thrice purified *Apala*. It will under go transformation in to the chemical energy. It has been expressed through prayer to *Indra* in the form of metaphor that *make her sun-skinned*. The sun skinned is a metaphor for the chemical energy after the transformation.

42. Hoping for well-willing, offspring, good-fortune, wealth, becoming obedient (anuvrata) to thy husband, gird thyself in order to immortality.

The natural wealth is due to the assimilated carbon. It is the source of welfare with good fortune and wealth. It has been prayed that *be obidient (anuvrata) to thy husband*, it indicate that chemical energy work together with carbon, through the prayer that *gird thyself in order to immortality.* It has been indicated that the chemical energy is immortal. It moves as immortal with organic carbon in the food chains and food webs.

43. As the [mighty (?Vṛsa)] river (sindhu) won (?su) the supremacy of the streams (nadī), so be thou supreme (samrajni), having gone away to thy husband's home.

It has been indicated that just like the *sindhu* river is supreme among the rivers, in the same fashion the chemical energy is supreme with its entry into her husband- carbon.

44. Be thou supreme among father-in-law, supreme also among brothers-in-law; be thou supreme over sister-in-law, supreme also over mother-in-law.

It has been indicated that the chemical energy is supreme over all the organic substances.

45. They (f.) who spun, wove, and who stretched [the verb], what divine ones (f.) gave the ends about, let them wrap thee in order to old age ; [as] one long-lived put about thee this garment.

One long-lived put about thee this garment. Through the garment the union of chemical energy with the carbon has been indicated, with its entry into the food chains and food webs it undergo its old age with end of life. It has been indicated by *that they (f.) who spun, wove, and who stretched*. They-the living organisms enclose the organic carbon- with its products in them in order to old age with end of life. It has been indicated by *let them wrap thee in order to old age.*

येन॑ महानु॒घ्न्या ज॒घन॒मश्वि॑ना॒ येन॑ वा॒ सुरा॑।
येना॒क्षा अ॒भ्यषि॑च्यन्त॒ तेने॒मां वर्च॑सावतम्॥ ३६॥
यो अ॑नि॒ध्मो दी॒दय॑दु॒प्स्व॑१॒न्तर्यं विप्रा॑स॒ ईड॑ते अध्व॒रेषु॑।
अपां॑ नपा॒न्मधु॑मतीर॒पो दा॒ याभि॒रिन्द्रो॑ वावृ॒धे वी॒र्या॒ वान्॥ ३७॥
इ॒दम॒हं रुश॑न्तं ग्रा॒भं त॑नू॒दूषि॒मपो॑हामि।
यो भ॒द्रो रो॑च॒नस्तमुद॑चामि॥ ३८॥
आस्यै॑ ब्राह्मणाः स्नप॑नीर्हर॒न्त्ववी॑रघ्नी॒रुद॑ज॒न्त्वाप॑ः।
अ॒र्य॒म्णो अ॒ग्निं पर्ये॑तु पूषन् प्रती॑क्षन्ते॒ श्वशु॑रो दे॒वर॑श्च॥ ३९॥
शं ते॒ हिर॑ण्यं॒ शमु॑ स॒न्त्वाप॒ः शं मे॒थिर्भ॑वतु॒ शं यु॒गस्य॒ तर्द्म॑।
शं त॒ आप॑ः श॒तप॑वित्रा भवन्तु॒ शमु॒ पत्या॑ तह्न्व॑१॒ सं स्पृ॑शस्व॥ ४०॥
खे रथ॑स्य॒ खेऽन॑स॒ः खे यु॒गस्य॑ शतक्रतो।
अ॒पा॒लामि॑न्द्र॒ त्रिष्पू॒त्वाकृ॑णो॒ः सूर्य॑त्वचम्॥ ४१॥
आ॒शासा॑ना सौमन॒सं प्र॒जां सौभा॑ग्यं र॒यिम्।
पत्यु॒रनु॑व्रता भू॒त्वा सं न॑ह्यस्वा॒मृता॑य॒ कम्॥ ४२॥
यथा॒ सिन्धु॑र्न॒दीनां॒ साम्रा॑ज्यं सुषु॒वे वृषा॑।
ए॒वा त्वं स॒म्राज्ञ्ये॑धि॒ पत्यु॒रस्तं॑ प॒रेत्य॑॥ ४३॥
स॒म्राज्ञ्ये॑धि॒ श्वशु॑रेषु स॒म्राज्ञ्यु॒त दे॒वृषु॑।
नना॑न्दुः स॒म्राज्ञ्ये॑धि स॒म्राज्ञ्यु॒त श्व॒श्र्वाः॥ ४४॥
या अकृ॑न्त॒न्नव॑य॒न् याश्च॑ त॒त्निरे या दे॒वीरन्ताँ॑ अ॒भितोऽद॑दन्त।
तास्त्वा॑ ज॒रसे॒ सं व्य॑य॒न्त्वायु॑ष्मती॒दं परि॑ धत्स्व॒ वास॑ः॥ ४५॥

c. Dark Reaction

In this way first the transformation of energy has been expressed *"This is that form in which young woman (A particular wavelength of light) dressed herself; I desire to know with my mind the wife moving about; I will go after her with nine fold comrades; who, knowing unloosened these fetters."* (Ath. XIV-1-56) The reduction of the carbon dioxide through the Calvin cycle has been indicated. The nine comrades are the nine products of the dark reaction. In *Ṛgveda* it has been expressed through *"Ten sons and a husband (glucose) as an eleventh man"* (Ṛg.10-LXXXV-45) (As suggested by Melvin Calvin 1946, 1951).

The first organic molecule has been considered as a husband of the chemical energy. The chemical energy has entered in to the cell through transformation and present in the assimilated carbon as free energy. The chemical energy has been termed as the household wife.

This woman has received garment for beauty from the *Tvaṣṭ ā* (the DNA) by the direction of *the Bṛhaspati* (regulator of the metabolic reactions in the cell) "*Savitā and Bhag has enveloped this woman, like Sūrya with progeny".* It means *Bhag*-photosynthetic pigment and *Savitā* has accepted it and the *Savitā* (enzymes) stimulate it so as to produce progeny. It means different products of the assimilated carbon-sugar molecule, they are to be synthesized in the cell, the regulator of the synthesis is nucleus (*Bṛhaspati*) and the various products like the carbohydrates, fats and proteins are the products of the same glucose molecule under the guidance of the DNA (Deoxy ribose Nucleic Acid). Hence it has been said that the woman has received garment for the beauty from the *Tvaṣṭā* (DNA), (Ath.XIV-1-53).

The factors of the photosynthesis have been indicated as *Indra-Soma*-electromagnetic energy, *Mātaeiśvan (*CO_2*), Mitra* (light) *Varuṇa* (gravity), *Bhag* (photosynthetic pigments). *Aśvin-nucleotide pairs of DNA*, it is the indication about the importance of the DNA, *Maruts* (Water clouds), *Brāhmiṇa* (**Soma**–magnetic energy in the cell). These factors control the process (Ath. XIV-1-54).

$$6C0_2 + 6H_20 \longrightarrow \text{Light} + \text{Chlorophyll} = \text{Glucose} + 60_2$$

Further it has been said that "*Bhag has fashioned four feet, Bhag has fashioned the four frames* and *Tvaṣṭā* adorned the straps" Ath. XIV-1-60. It has been indicated that during the synthesis of the glucose it has four steps, these four steps represents the carbon di oxide (CO_2), Water (CO_2), Water (H_2O), Glucose ($C_6H_{12}O6$) and Oxygen (O_2), they under go oxidation–reduction reactions and stimulates the process of the synthesis, the four frames- pieces represents four base pairs on the DNA strips. The DNA- *Tvaṣṭā* is a genetic material with four base pairs, they regulates the protein synthesis and the course of life of the living beings.

In this way an all formed bridal car (Cell) get established on the journey of the cell towards the evolution. The DNA strips are the two pillars on the natural path-God made road, in the end of the hymn presence of the fundamental energy every where has been expressed under the name of *Brāhmiṇa*. (Ath.XIV-1-64)

जीवं रुदन्ति वि नयन्त्यध्वरं दीर्घामनु प्रसितिं दीध्युर्नरः।
वामं पितृभ्यो य इदं समीरिरे मयः पतिभ्यो जनये परिष्वजे॥४६॥

46. They bewail the living one (m.); they lead away the sacrifice (adhvara); the men sent their thoughts after [root dhi...anu] a long reach (prasiti); what is lovely (vāma) for the Fathers who came together here; joy to the husbands for embracing the wife.

It has been indicated symbolically that the union of chemical energy with carbon as assimilated carbon is carries forward by the living organisms in the creation sacrifice. Where men in the creation express their thoughts after a long journey of evolution-the union of chemical energy with carbon is lovely for the creatures and joy for the components of the nature

स्योनं ध्रुवं प्रजायै धारयामि तेऽश्मानं देव्याः पृथिव्या उपस्थे।
तमा तिष्ठानुमाद्या सुवर्चा दीर्घं त आयुः सविता कृणोतु॥४७॥

47. I maintain for thee, in order to progeny, a pleasant, firm (dhruva) stone in the lap of the divine earth; stand thou on that, one to be exalted after, of excellent glory; let Savitā make for thee a long life-time.

It has been expressed in an anthropomorphic manner through the mouth of organic carbon-sugar that I assimilated carbon-sugar has provided a firm platform for the chemical energy with different products on the earth, where *savitā*-stimulator-enzymes have provided it a long life time in the living beings.

येनाग्निरस्या भूम्या हस्तं जग्राह दक्षिणम्।
तेन गृह्णामि ते हस्तं मा व्यथिष्ठा मया सह प्रजया च धनेन च॥४८॥

48. Wherewith Agni grasped the right hand of this earth, therewith grasp I thy hand; do not stagger in company with me, with both progeny *and riches.*

It has been indicated that on the earth *Agni*-energy is just like the right hand of the earth and I carbon has grasp thy hand-chemical energy, which is the source of natural products and wealth.

दे॒वस्ते॑ सवि॒ता हस्तं॑ गृह्णातु॒ सोमो॒ राजा॑ सुप्र॒जसं॑ कृणोतु।
अ॒ग्निः सु॒भगां॑ जा॒तवे॑दा॒ः पत्ये॒ पत्नीं॑ ज॒रद॑ष्टिं कृणोतु॥४९॥

49. Let god Savitā grasp thy hand; let king Soma make thee to have good offspring; let Agni, Jātavedas, make the spouse well-portioned, long-lived, for her husband.

It has been indicated through prayer that let *savitr*-stimulator enzymes in the living-beings carry forward it with development of physical body and king *Soma*- life energy may grant off springs with the house hold fire of the earth. They may grant long life to the assimilated carbon in the nature.

गृ॒ह्णामि॑ ते सौभग॒त्वाय॒ हस्तं॒ मया॒ पत्या॑ ज॒रद॑ष्टि॒र्यथास॑ः।
भगो॑ अर्य॒मा स॑वि॒ता पुर॑न्धि॒र्मह्यं॑ त्वादु॒र्गार्ह॑पत्याय दे॒वाः॥५०॥

50. I grasp thy hand in order to good-fortune, that with me as husband thou mayest be long-lived; Bhaga, Aryaman, Savitā, Purandhi [puraṁdhi]– the gods have given thee to me in order to housewifeship.

It has been expressed through the mouth of chemical energy in an anthropomorphic manner that for the good fortune I–the chemical energy unite with you-carbon and as husband thou may be long lived, where the natural factors *Bhaga, Aryaman, Savitā, Purandhi [puraṁdhi]* have given thee (carbon) to me- (chemical energy) in order to housewifeship. It has been indicated that the chemical energy is the controller like a housewife of the home.

भग॑स्ते॒ हस्त॑मग्रहीत् सवि॒ता हस्त॑मग्रहीत्।
पत्नी॒ त्वम॑सि॒ धर्म॑णा॒हं गृ॒हप॑ति॒स्तव॑॥५१॥

51. Bhaga hath grasped thy hand; Savitā hath grasped thy hand; thou art [my] spouse by ordinance (dharmaṇa), I thy house-lord.

It has been expressed that during the photosynthesis, the light energy is first enter in to the *Bhaga*- pigments, than it is stimulated by the enzymes- *Savitā,* accordingly the chemical energy unite with the carbon under the cosmic principle, where the carbon as the lord of chemical energy is just like her husband.

ममेयमस्तु पोष्या मह्यं त्वादाद् बृहस्पतिः।
मया पत्या प्रजावति सं जीव शरदः शतम्॥५२॥

52. Be this woman mine, bringing prosperity (posya); Bṛhaspati hath given thee to me; in company with me [as husband] do thou live, rich in offspring, a hundred autumns.

It has been expressed by the carbon in an anthropomorphic manner that chemical energy is just like a woman. She nourishes me (carbon) with prosperity under the guidance of nucleus- *Bṛhaspati* in the living-beings, where it increases with different carbon products like her progeny.

त्वष्टा वासो व्यदधाच्छुभे कं बृहस्पतेः प्रशिषा कवीनाम्।
तेनेमां नारीं सविता भगश्च सूर्यामिव परि धत्तां प्रजया॥५३॥

53. Tvaṣṭṛ disposed (vyadadhā) the garment for beauty, by direction of Bṛhaspati, of the poets; therewith let Savitā and Bhaga envelop this woman, like Sūrya, with progeny.

It has been expressed that with the union of chemical energy with carbon in the form of organic carbon-glucose-hexose sugar, the *Tvaṣṭā*-DNA gave it different forms under the direction of the nucleus- *Bṛhaspati and Bhag*-pigments with *Savitā*-enzymes assist it with different forms, just like the *Bhaga*-pigments assist the *Sūrya*- sunlight for the conversion of the light energy in to the chemical energy with different forms in the nature.

इन्द्राग्नी द्यावापृथिवी मातरिश्वा मित्रावरुणा भगो अश्विनोभा।
बृहस्पतिर्मरुतो ब्रह्म सोम इमां नारीं प्रजया वर्धयन्तु॥५४॥

54. Let Indra-and-Agni, heaven-and-earth, Mātariśvan, Mitra-and-Varuṇa, Bhaga, both Aśvins, Bṛhaspati, the Maruts, the Brahman, Soma, increase this woman with progeny.

It has been prayed that all the natural forces and factors like *Indra-and-Agni* -electromagnetic energy, space-heaven and earth, *Matricvan*- carbon di oxide, *Mitra*-light, *Varuṇa*-gravity, *Bhag*-pigments, both *Aśvins*-nucleotide pairs of DNA, *Bṛhaspati*-

nucleus, *Maruts*-water clouds and *Soma*- magnetic energy assist the chemical energy for its proliferation in the nature.

बृह॒स्पति॑ः प्रथ॒मः सू॒र्याया॑ः शी॒र्षे केशाँ॑ अकल्पयत्।
तेने॒माम॑श्विना॒ नारीं॒ पत्ये॒ सं शो॑भयामसि॥५५॥

55. Bṛhaspati first prepared (kalp) the hairs on the head of Sūrya; with this, O Aśvins, do we thoroughly adorn (cubh) this woman for her husband.

It has been indicated that the light rays are coming out from the head of the Sun in the form of *Aśvin* represent electromagnetic rays. It has been expressed in an anthropomorphic manner that the electromagnetic rays have been converted in to the chemical energy for synthesis of organic carbon.

h. Calvin cycle

इ॒दं तद्रू॒पं यदव॑स्त॒ योषा॑ जा॒यां जिज्ञा॑से॒ मन॑सा॒ चर॑न्तीम्।
तामन्व॑र्तिष्ये॒ सखि॑भि॒र्नव॑ग्वैः क इ॒मान् वि॒द्वान् वि च॑चर्त॒ पाशा॑न्॥५६॥

56. This [is] that form in which the young woman (yoṣa) dressed herself; I desire to know with [my] mind the wife (jāyā) moving about; I will go after her with nine-fold (?Navagva) comrades : who, knowing, unloosened (vi-carta) these fetters?

It has been expressed that the assimilated carbon-sugar is the form in which the chemical energy dressed herself. I want to know the course of the chemical energy as wife, through it the carbon cycle of the dark reaction has been indicated by saying that; *I will go after her with nine-fold (Navagva) comrades*. It indicates that during the dark reaction the carbon atom under go chemical reactions in a nine fold manner with nine intermediate forms.

अ॒हं वि ष्या॑मि॒ मयि॑ रू॒पम॑स्या॒ वेद॒दित् पश्य॒न् मन॑सः कु॒लाय॑म्।
न स्तेय॑मद्मि॒ म॒नसोद॑मुच्ये स्व॒यं श्र॑थ्ना॒नो वरु॑णस्य॒ पाशा॑न्॥५७॥

57. I loosen (vi-ṣa) in me the form of her; he verily shall know, seeing the nest of mind; I eat not stonely; I was freed (ud-muc) by mind, myself untying (crath) the fetters of Varuṇa.

It has been expressed symbolically that I carbon is not only moving under the natural carbon cycle with the organic materials, where I carbon became free from the gravitational force-*Varuṇa* during the synthesis and degradation but I loosen her form, which has been united with me, it means the importance of the bond energy, which regulate the operation of the synthesis and degradation in the nature has been indicated.

प्र त्वा॑ मु॒ञ्चामि॒ वरु॑णस्य॒ पाशा॒द् येन॒ त्वाब॑ध्नात् सवि॒ता सु॒शेवा॑ः।
उ॒रुं लो॒कं सु॒गम॒त्र पन्था॑ं कृ॒णोमि॒ तुभ्य॑ं स॒हप॑त्न्यै वधु॥५८॥

58. I release thee from Varuṇa's fetter, with which the very propitious Savitā bound thee; wide space (loka), an easy road here, do I make for thee, O bride (vadhu), with thy husband.

Symbolically it has been expressed through the mouth of the carbon in an anthropomorphic manner that the release of chemical energy from the bond of materialistic substances through breaking of the bond energy. It has been indicated by saying *I release thee from Varuṇa's fetter*, it means breaking of the bonds from the gravitational force of the matter, where it was bound in the matter through the *savitr*-enzymes. In this fashion for the chemical energy a wide space and an easy path is there in the nature with her husband-assimilated carbon.

उद्य॑च्छध्व॒मप॒ रक्षो॑ हनाथे॒मां नारीं॑ सुकृ॒ते द॑धात।
धा॒ता वि॑प॒श्चित् पति॑म॒स्यै वि॑वेद॒ भगो॒ राजा॑ पु॒र ए॑तु प्रजा॒नन्॥५९॥

59. Raise ye [your weapons]; may ye smite away the demon; set this woman in what is well done; inspired Dhātā found for her a husband; let king Bhaga go in front, foreknowing.

It has been prayed that during the journey of the chemical energy with her husband-carbon. The obstacles may be driven away by them through their action. It has been indicated that the union of the chemical energy with the carbon has been inspired by the fundamental energy- *Dhātā*, where *Bhag*-pigments are the initiators.

भग॑स्ततक्ष च॒तुर॒ः पादा॒न् भग॑स्ततक्ष च॒त्वार्युष्प॑लानि।
त्वष्टा॑ पिपेश मध्य॒तोऽनु॒ वर्ध्रा॒न्त्सा नौ॑ अस्तु सुमङ्ग॒ली॥६०॥

60. Bhaga fashioned the four feet; Bhaga fashioned the four frame pieces (? Usyala); Tvaṣṭṛ adorned (pic) the straps (?vardhna) along in the middle; let her be to us of excellent omen.

$$6CO_2 + 6H_2O \longrightarrow \text{Light} + \text{Chlorophyll} = \text{Glucose} + 6O_2$$

It has been indicated that for the photosynthesis *Bhag*-pigments have fashioned the four steps with four components. The *Bhag* fashioned the four frames-it means four nucleotide pairs of the DNA. *The Tvaṣṭā-DNA has adonrned the straps along in the middle*, it means the bond energy of the hydrogen, which bind the nucleotide pairs on the two helix of DNA.

सु॒किं॒शु॒कं व॑ह॒तुं वि॒श्वरू॑पं॒ हिर॑ण्यवर्णं सु॒वृतं॑ सु॒च॒क्रम्।
आ रो॑ह सूर्ये अ॒मृत॑स्य लो॒कं स्यो॒नं पति॑भ्यो वह॒तुं कृ॑णु॒ त्वम्॥ ६१॥

61. The well-flowered (sukinśuka), all-formed bridal-car (vahatu), golden colored, well-rolling, well-wheeled, do thou mount, O Sūrya, to the world of the immortal; make thou a bridal-car pleasant to husbands.

It has been indicated that the eukaryotic cell with the chlorophyll pigments and the DNA is like a well flowered- all formed bridal car. It rolls round the heaven with definite life cycles of the living beings. It has been shaped by the Sun for the immortal world of assimilated carbon in the living-beings. It has been ask to the chemical energy that; *make thou .a bridal-car pleasant to husbands*. It means the synthesis of the various carbon products has been indicated. The husband represents carbon and the bridal car represents assimilated carbon.

अभ्रा॑तृघ्नीं वरु॒णाप॑शुघ्नीं बृहस्पते।
इन्द्रा॑पतिघ्नीं पु॒त्रिणी॒मास्मभ्यं॑ सवितर्वह॥ ६२॥

62. Her, not brother-slaying, O Varuṇa; not cattle-slaying, O Bṛhaspati; not husband-slaying, possessing sons, O Indra – bring [her] for us, O Savitā.

It has been prayed to the nucleus and *Indra* in a symbolic fashion to bring active *Savitā*–enzymes so that that the chemical energy may not be harmful.

मा हिं॑सिष्टं कु॒मार्य॑१॒ स्थूणे॑ दे॒वकृ॑ते प॒थि।
शाला॑या दे॒व्या द्वारं॑ स्यो॒नं कृ॑ण्मो वधूप॒थम्॥ ६३॥

63. Injure ye not the maiden (kumārī), ye (two) pillars, on the god-made road; the door of the divine house we make pleasant, a road for the bride.

It has been indicated that the chemical energy and assimilated carbon are the two pillars on the natural path.

ब्रह्माप॑रं यु॒ज्यतां॒ ब्रह्म॒ पूर्वं॒ ब्रह्मा॑न्त॒तो म॑ध्य॒तो ब्रह्म॑ स॒र्वतः॑।
अ॒ना॒व्या॒धां दे॑वपु॒रां प्र॒पद्य॑ शि॒वा स्यो॒ना प॑तिलो॒के वि रा॑ज॥६४॥

64. Let the Brahman be yoked after, the Brahman before, the Brahman at the end, in the middle, the Brahman everywhere; going forward to an impenetrable stronghold of the gods, do thou (f.), propitious, pleasant, bear rule in thy husband's world.

It has been indicated that the world of the living creation is ruled by the chemical energy through the carbon assimilation, where *Brahman*- fundamental energy is every where in the forefront of the natural forces.

i. Journey of the chemical energy

After describing the carbon assimilation through the wedding of the *Aryaman,* further it has been indicated in the next hymn that how the assimilated carbon under go evolution through the metabolic reactions. It has been indicated in a symbolic fashion with indicating the formation of the cell with DNA as genetic material as the source of evolution of the living beings, through crossing over. Accordingly the functions of the chemical energy, the cell and the living beings have been expressed symbolically. It has been expressed through the family relationships.

1. For thee in the beginning they carried about Sūrya, together with the bridal-car; mayest thou, O Agni, give to us husbands the wife, together with progeny.

It has been expressed in a symbolic fashion through prayer that the sun rays travel in the form of electromagnetic rays (the bridal-car) with heat energy, which under go carbon assimilation and its products.

2. Agni hath given back the spouse, together with life-time, he who is the husband of her live a hundred autumns.

It has been said that during the carbon assimilation it under go cyclic chain reactions, where the cycle ends with the synthesis of the initiator compound. It has been indicated by saying Agni hath given back the spouse, together with life-time.

सोम॑स्य जा॒या प्र॑थ॒मं ग॑न्ध॒र्वस्तेऽप॑रः॒ पति॑ः।
तृ॒तीयो॑ अ॒ग्निष्टे॒ पति॑स्तु॒रीय॑स्ते मनुष्य॒जाः॥ ३॥

3. Soma's wife first; the Gandharva thy next husband; Agni thy third husband; thy fourth, one of human birth.

It has been indicated that the chemical energy is activated by the magnetic energy first than it reaches in to the cytoplasm with metabolic heat energy. Accordingly with the evolution, the chemical energy reaches to its climax in the human-beings.

सोमो॑ ददद् गन्ध॒र्वाय॑ गन्ध॒र्वो द॑दद॒ग्नये॑।
र॒यिं च॑ पु॒त्रांश्चा॑दाद॒ग्निर्मह्य॒मथो॑ इ॒माम्॥ ४॥

4. Soma gave to the Gandharva; the Gandharva gave to Agni; both wealth and sons hath Agni given to me, likewise this woman.

It has been expressed in an anthropomorphic manner that due to the streaming of the protoplasm- *the Gandharva* the magnetic energy-*Soma* generates. It has been grasped by the protoplasm with the metabolic energy in the cells. It is the source of different products as wealth with evolution in the form of human creation like me and my female counter part this woman.

Here in a symbolic fashion the journey of the light rays after the transformation has been indicated. It has been expressed that as soon as the light energy approaches the cell, first the *Soma* receives it, which is present in the cell due to the streaming of the protoplasm in side a cell. The *Soma* gave it to the *Gandharva* (protoplasm), it means than the energy enter in to the protoplasm, than it under go the biochemical reactions. Hence it has been said that *Gandharva* gave it to *Agni*- metabolic energy, accordingly the various substances have been synthesized inside a cell. The cellular products have been described as wealth. Accordingly in the series the human-beings have came in to the existence. In the same manner this woman *Agni* has been given to me. (Ath XV-2-

3,4) It means through the material wealth of the photosynthetic food material, the human beings came in to the existence and likewise the woman also. It is the indication of organic evolution.

आ वा॑मगन्त्सुम॒तिर्वा॑जिनीवसू॒ न्य॒श्विना हृ॒त्सु कामा॑ अरंसत।
अभू॑तं गो॒पा मि॑थुना शु॑भस्पती प्रि॒या अ॑र्य॒म्णो दुर्यॉँ अशीमहि॥५॥

5. Your favor hath come, O ye (two) of abundant good things (? Vajinivasu); [our] desires have rested in [your] hearts, O Aśvins; ye have been twin keepers, O lords of beauty ; may we, being dear, attain favorers (aryaman) of our homes (? Durya) (Ath.14-2-5).

It has been indicated that the chemical energy and organic carbon. They are the source of the different products. The *Aśvin*-nucleotide pairs of DNA are the twin keepers of the nature. It has been expressed by "*O ye (two) of abundant good things, O Aśvin; ye have been twin keepers.* for Their function, are dependent on the photosynthesis. Hence for the welfare, the favour of *Aryaman*- red wavelength of light has been expressed. for the photosynthesis. It has been indicated by *lord of beauty we, being dear, attain favorers (Aryaman) of our homes.*

"Prey hear ye now of me, O men, by what blessings (acts) the two spouses attain what is agreeable (vāma): what Gandharvas (there are) and heavenly Apsarāses, who stand upon these forest trees (vanaspatya), let them be pleasant un to this bride; let them not injure the bridal car as it is driven".

Here the two spouses represents anabolism and catabolism, the *Gandharva* represents protoplasm and the heavenly *Apsarases* are the indicators of the cyclic metabolic reactions, which if uninjured leads to the evolution and accordingly the indications about the probable obstructions have been given, during the journey of the chemical energy from the green cell to its destiny in the nature. With the formation of a well equipped (well developed eukaryotic cell) a vast field is get open for the evolution the same has been indicated in as under.

(As) a soulful cultivated field hath this woman come; in her here, O man, scutter ye seed, she shall give birth to progeny for you from her belly bearing the exuded sperm of the male (ṛṣabha) (Ath. XV-2-14).

Further it has been indicated that from this plants and animals of various forms have been born.

Let there come forth from the lap of this mother animals of various forms, being born; as one of excellent omen, sit thou by this fire; with thy husband, be thou serviceable to the gods here. (Ath.XV-2-25)[1]

"The gold cushioned vehicle, bearing all forms, did Sūrya, Savitā's daughter, mount, in order to great good progeny"(well developed cell) (Ath. XV-2-30). The gods in the beginning lay with (ni-pad) their spouses; they embraced (sam-prac) bodies; (indication of crossing over) like Sūrya, O woman, all formed, with greatness, having progeny, unite (sam-bhu) here with thy husband." (Ath. XV-2-32).

Accordingly the functions of a mature cell have been expressed symbolically, through the family relationships, the universal importance of the chemical energy and the carbon has been indicated.

j. Journey of the assimilated carbon in the nature

After describing the carbon assimilation through the wedding of the *Aryaman,* further it has been indicated in the hymn that how the assimilated carbon under go evolution through the metabolic reactions, it has been indicated in a symbolic fashion with indicating the formation of the cell with DNA as genetic material as the source of evolution of the living creation through crossing over. Accordingly the functions of the chemical energy the cell and the living beings have been expressed symbolically, through the family relationships the universal importance of the chemical energy and the carbon has been indicated.

In the next wedding hymns the journey of the assimilated carbon has been traced, where bride (sun rays) "So*m*a's wife first; the *Gandharva* thy next husband; *Agni* is thy third husband; thy fourth, one of human birth, accordingly Soma gave it to

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[1] वि ति॑ न्तां मा॒तुर॒स्या उ॒पस्था॒न्नाना॑रूपाः प॒शवो॒ जाय॑मानाः।
सु॒म॒ङ्ग॒ल्युप॑ सीदे॒मम॒ग्निं संप॑त्नी॒ प्रति॑ भूषे॒ह दे॒वान्॥ २५॥

Gandharva and *Gandharva* gave it to *Agni* with wealth and son, Agni has given it to to me like wise this woman". (Ath. XIV-2-3,4)

तुभ्य॒मग्रे॒ पर्य॑वहन्त्सू॒र्यां व॑ह॒तुना॑ स॒ह। स न॒ः पति॑भ्यो जा॒यां दा अग्ने॑ प्र॒जया॑ स॒ह॥ १॥

1. For thee in the beginning they carried about Sūrya, together with the bridal-car; mayest thou, O Agni, give to us husbands the wife, together with progeny.

It has been expressed in a symbolic fashion through prayer that the sun rays travel in the form of electromagnetic rays (the bridal-car) with heat energy. It under go carbon assimilation, the products of the organic carbon represents progeny.

पुन॒ः पत्नी॑म॒ग्निर॑दा॒दायु॑षा स॒ह वर्च॑सा। दी॒र्घायु॑रस्या॒ यः पति॒र्जीवा॑ति श॒रद॑ः श॒तम्॥ २

2. Agni hath given back the spouse, together with life-time, he who is the husband of her live a hundred autumns.

It has been said that during the carbon assimilation it under go cyclic chain reactions, where the cycle ends with the synthesis of the initiator compound, it has been indicated by saying *Agni hath given back the spouse, together with life-time.*

सोम॑स्य जा॒या प्र॑थ॒मं ग॑न्ध॒र्वस्तेऽप॑र॒ः पति॑ः। तृ॒तीयो॑ अ॒ग्निष्टे॒ पति॑स्तु॒रीय॑स्ते मनुष्य॒जाः॥

3. Soma's wife first; the Gandharva thy next husband; Agni thy third husband; thy fourth, one of human birth.

It has been indicated that the chemical energy is activated by the magnetic energy first than it reaches in to the cytoplasm with metabolic heat energy. Accordingly with the evolution, the chemical energy reaches to its climax in the human-beings.

सोमो॑ ददद् गन्ध॒र्वाय॑ गन्ध॒र्वो द॑ददु॒ग्नये॑। र॒यिं च॑ पु॒त्रांश्चा॑दादु॒ग्निर्मह्य॒मथो॑ इ॒माम्॥ ४॥

4. Soma gave to the Gandharva; the Gandharva gave to Agni; both wealth and sons hath Agni given to me, likewise this woman.

It has been expressed in an anthropomorphic manner that due to the streaming of the protoplasm- the *Gandharva* generates the *Soma*-magnetic energy. It has been grasped by the protoplasm with the metabolic energy in the cells. It is the source of different products as wealth with evolution of the living beings.

Accordingly the form of man like me and my female counter part this woman also.

आ वां॑मगन्त्सुम॒तिर्वा॑जिनीवसू॒ न्य॒श्विना हृ॒त्सु कामा॑ अरंसत।
अभू॑तं गो॒पा मि॑थु॒ना शु॑भस्पती प्रि॒या अ॑र्य॒म्णो दुर्याँ॑ अशीमहि॥५॥

5. Your favor hath come, O ye (two) of abundant good things (? Vajinivasu); [our] desires have rested in [your] hearts, O Aśvins; ye have been twin keepers, O lords of beauty; may we, being dear, attain favorers (aryaman) of our homes (? Durya).

It has been indicated that the chemical energy and carbon. They together as assimilated carbon are the source of different products. The *Aśvin* are the twin keepers of the nature, they represent nucleotide pairs of DNA. It has been expressed by *"O ye (two) of abundant good things, O Aśvin; ye have been twin keepers.* Their function in the nature is dependent on the photosynthesis, hence the favour of *Aryaman*- red wavelength of light for the photosynthesis has been desired. It has been indicated by *lord of beauty we, being dear, attain favorers (Aryaman) of our homes.*

सा म॑न्दसा॒ना मन॑सा शि॒वेन॑ र॒यिं धे॑हि॒ सर्व॑वीरं वच॒स्य॒म्।
सु॒गं ती॒र्थं सु॑प्रपा॒णं शु॑भस्पती स्था॒णुं प॑थि॒ष्ठामप॑ दुर्म॒तिं ह॑तम्॥६॥

6. Do thou (f.), rejoicing with propitious mind, assign wealth having all heroes, to be extolled; an easy crossing (tirtha), well provided with drink, O lords (du.) of beauty; do ye smite away the pillar standing in the road, [namely] disfavor.

It has been indicated that the chemical energy is the source of natural wealth with natural forces as heroes. Symbolically the probable obstacles during the metabolic reactions have been indicated by- *do ye smite away the pillar standing in the road, [namely] disfavor.*

या ओष॑धयो॒ या न॒द्यो॒३ यानि॒ क्षेत्रा॑णि॒ या वना॑।
तास्त्वा॑ वधु प्र॒जाव॑तीं॒ पत्ये॑ रक्षन्तु र॒क्षस॑ः॥७॥

7. What herbs [there are], what streams, what fields, what forests– let these, O bride, defend from the demon thee, possessing progeny, for thy husband.

It has been indicated that the chemical energy present in the herbs, crop fields and the forest trees, their existence is due to the assimilated carbon-husband. It is due to the fact that the plant bodies have a carbon skeleton. Accordingly it has been prayed that– *let these, O bride, defend from the demon thee, possessing progeny.*

एमं पन्था॑मरुक्षाम सु॒गं स्व॑स्ति॒वाह॑नम्।
यस्मि॑न् वी॒रो न रिष्य॑त्य॒न्येषां॑ वि॒न्दते॒ वसु॑॥८॥

8. We have mounted this road, easy, bringing welfare, on which a hero takes no harm, [but] finds others' goods.

It has been expressed in an anthropomorphic manner that the metabolism is a path on which the hero- carbon moves without harm.

इ॒दं सु मे॑ नरः शृणुत॒ यया॒शिषा॒ दम्प॑ती वा॒मम॑श्नु॒तः।
ये ग॑न्ध॒र्वा अ॑प्स॒रस॑श्च दे॒वीरे॒षु वान॑स्प॒त्येषु॒ येऽधि॑ त॒स्थुः।
स्यो॒नास्ते॑ अ॒स्यै व॒ध्वै भ॑वन्तु॒ मा हिं॑सिषुर्वह॒तुमु॒ह्यमा॑नम्॥९॥

9. Pray hear ye now of me, O men, by what blessing (acts) the two spouses attain what is agreeable (vama): what Gandharva [there are] and heavenly Apsarases, who stand upon these forest trees Uanaspatyd). Let them be pleasant unto this bride; let them not injure the bridal-car as it is driven.

The assimilated carbon has been termed as two spouses and it is the bridal car symbolically, which take part in the metabolic reactions in the protoplasm. The protoplasm has been termed as *Gandharva* and the metabolic reactions, which operates in cycles, they have been termed as *Apsarases*, their presence in the plants has been indicated through *what Gandharva [there are] and heavenly Apsarases, who stand upon these forest trees Uanaspatyd). Let them be pleasant unto this bride; let them not injure the bridal-car as it is driven.*

ये व॒ध्व॒ श्च॒न्द्रं व॑ह॒तुं यक्ष्मा॒ यन्ति॒ जना॒ँ अनु॑।
पुन॒स्तान् य॒ज्ञिया॑ दे॒वा नय॑न्तु॒ यत॒ आग॑ताः॥१०॥

10. What yakṣamas go to the bride's brilliant (candrd) car among the people let the worshipful gods conduct those back whence they came.

The bride's car indicate the movement of the chemical energy in the living beings, it has been indicated through the car among the people and the bio-geo-chemical cycle has been indicated through *let the worshipful gods-natural forces conduct those back whence they came.*

मा वि॑दन् परि॒प॒न्थिनो॒ य आ॒सीद॑न्ति॒ दम्प॑ती।
सु॒गेन॑ दु॒र्गमती॑ताहमप॑ द्रा॒न्त्वरा॑तयः॥ ११॥

11. Let not the waylayers who pursu (them) find the two spouses;let them go over what is difficult by an easy (road); let the niggards run away.

The journey of the two spouses on the path of metabolism without obstacles has been prayed.

सं का॑शयामि वह॒तुं ब्रह्म॑णा गृ॒हैरघो॑रेण॒ चक्षु॑षा मि॒त्रिये॑ण।
प॒र्याण॑द्धं वि॒श्वरू॑पं॒ यदस्ति॑ स्यो॒नं पति॑भ्यः सवि॒ता तत् कृ॑णोतु॥ १२॥

12. I cause the bridal-car to be viewed by the house with worship with a friendly ,not terrible eye; what of all forms is fastend on about ,let Savitā make that pleasant for the husbands,

It has been expressed through the mouth of the assimilated carbon that I assimilated carbon is the cause of the movement as bridal car in the cell-house, the metabolism is like a worship, it has the potentiality to synthesize all the forms, these forms and the products are due the assimilated carbon for which the enzymes make a easy path.

शि॒वा नारी॒यमस्त॒माग॑न्नि॒मं धा॒ता लो॒कम॒स्यै दि॑देश।
ताम॑र्य॒मा भगो॑ अ॒श्विनो॒भा प्र॒जाप॑तिः प्र॒जया॑ वर्धयन्तु॥ १३॥

13. Propitious hath this woman come to the home; Dhātā appointed this world (Shere) to her; let her Aryaman, Bhaga both Aśvins Prajāpati, increase with progeny.

It has been indicated that the chemical energy, which has entered in the assimilated carbon is favourable like a woman, its transformation has been inspired by the *Dhātā*-fundamental energy as his share in the world, further how it increases, it has been indicated ***by** let her Aryaman, Bhaga both Aśvins Prajāpati, increase with progeny.* It means the chemical energy increases through transformation of *the Aryaman* in the presence of *Bhag-*

pigments and both *Aśvins*-nucleotide pairs under the lord of beings-*Prajāpati*-fundamental energy. Accordingly the human-beings and the woman came in to the existence.

आ॒त्म॒न्वत्यु॒र्वरा॒ नारी॒यमाग॒न् तस्यां॑ नरो वपत॒ बीजं॑मस्याम्।
सा व॑ः प्र॒जां जं॑नयद् व॒क्षणा॑भ्यो॒ बिभ्र॑ती दु॒ग्धमृ॑ष॒भस्य॒ रेत॑ः॥ १४॥

14. (As) a soulful cultivated field hath this woman come; in her here, o man, scatter ye seed, she shall give birth to progeny for you from her belly bearing the exuded sperm of the male (ṛsabha)

It has been indicated that due to the activity of the chemical energy the soulful cultivated field in the shape of woman has came in to the existence, where man scatter seed for progeny, which bear the sperm in her belly for birth of progeny.

प्रति॑ ति वि॒राड॑सि॒ विष्णु॑रिवे॒ह सर॑स्वति।
सिनी॑वालि॒ प्र जा॑यतां॒ भग॑स्य सुम॒ताव॑सत्॥ १५॥

15. stand firm; viraj art thou; as it were, Viṣṇu here O Sarasvati; O Sinīvāli, let her have progeny; may she be in the favor of Bhaga,

How she gave birth it has been expressed that the chemical energy is supreme like Viṣṇu- light, accordingly it has been prayed that *O Sarasvati; O Sinīvāli*, let her have progeny; may she be in the favor of *Bhaga*, where *Sarasvati* represents *Vāk*-thought energy and *Sinīvāli* represents duplicating DNA in the womb so as to increase it through progeny, so that she-chemical energy may remain favourable to the *Bhag*-pigments.

How the metabolic reactions are operating in the cell, it has been indicated symbolically.

उद् व॑ ऊ॒र्मिः शम्या॑ ह॒न्त्वापो॒ योक्त्रा॑णि मुञ्चत।
मादु॑ष्कृतौ॒ व्ये॒ नसा॒वघ्न्यावशु॑न॒मार॑ताम्॥ १६॥

16. Let your wave smite up the pegs; O waters, release the yoke-ropse (yoktra); let not the inviolable (kine), not evil-doing free from guilt, come upon what is unpropitious.

It has been expressed that the waves of the chemical energy through breaking of the bond energy may smite up the pegs-metabolic cycles with the help of water.

Importance of water has been indicated during the metabolism.

अघो॑रचक्षु॒रप॑तिघ्नी स्यो॒ना श॒ग्मा सु॒शेवा॑ सु॒यमा॑ गृ॒हेभ्य॑ः।
वी॒र॒सूर्दे॒वृका॑मा॒ सं त्वयै॑धिषीमहि सुमन॒स्यमा॑ना॥ १७॥

17. With an aye not terrible not husband-saying pleasant, helpful very propitious of easy control for the house-hero bearing loving brothes-in law (?), With favouring–may we thrive together with thee.

It has been expressed symbolically that the chemical energy controls the synthesis and degradation without harm along with assimilated carbon.

अदे॑वृ॒घ्न्यप॑तिघ्नी॒हैधि॑ शि॒वा प॒शुभ्य॑ः सु॒यमा॑ सु॒वर्चा॑ः।
प्र॒जाव॑ती वीर॒सूर्दे॒वृका॑मा स्यो॒नेमम॒ग्निं गार्ह॑पत्यं सपर्य॥ १८॥

18. Not brother-in-law slaying not husband–slaying be thou here propitious to the cattle, of easy control vary splendid having progeny hero-bearing loving brothers-in law (?), pleasant, do thou worship this householder's fire.

It has been indicated that the chemical energy is useful for the living beings.

उत्ति॑ष्ठे॒तः किमि॒च्छन्ती॒दमागा॑ अ॒हं त्वे॑डे अभि॒भूः स्वाद् गृ॒हात्।
शू॒न्यै॒षी नि॑र्ऋते॒ याज॒गन्थोत्ति॑ष्ठाराते॒ प्र प॑त॒ मेह र॑स्थाः॥ १९॥

19. Stand up from hare; desiring what hast thou (f.) come hither? I thine overcomer O Ida, out of own house; thou that hast come hither O perdition seeking the empty–stand up; O niggard; fly forth; rest not here.

य॒दा गार्ह॑पत्यमस॑पर्यै॒त् पूर्व॑म॒ग्निं व॒धूरि॒यम्।
अधा॒ सर॑स्वत्यै नारि पि॒तृभ्य॑श्च॒ नम॑स्कुरु॥ २०॥

20. When this bride hath worshiped the huseholder's the former fire, then, O woman, do thou pay homage to Sarasvati and to the Fathers.

Importance of Vāc-thought energy and the hereditary characters through *Sarasvati and fathers.*

शर्म॒ वर्मै॒तदा ह॑रा॒स्यै नार्या॑ उप॒स्तरे॑।
सिनी॑वालि॒ प्र जा॑यतां॒ भग॑स्य सुम॒ताव॑सत्॥ २१॥

21. Take this protection, defense, to spread under this woman; O Sinīvāli, let her have progeny; may she be in the favor of Bhaga.

It has been addressed to the chemical energy that avail the protection of this woman and spread under this woman, so that she may have progeny.

How the assimilated carbon with chemical energy spread, it has been indicated.

यं बल्ब॑जं॒ न्यस्य॑थ॒ चर्म॑ चोपस्तृणी॒थन॑।
तदा रो॑हतु सुप्र॒जा या क॒न्या॒ वि॒न्दते॒ पति॑म्॥ २२॥
उप॑ स्तृणीहि॒ बल्ब॑ज॒मधि॒ चर्म॑णि रोहि॑ते।
तत्रो॑प॒विश्य॑ सुप्र॒जा इ॒मम॒ग्निं स॑पर्यतु॥ २३॥
आ रो॑ह॒ चर्मोप॑ सीदा॒ग्निमे॒ष दे॒वो ह॑न्ति॒ रक्षां॑सि॒ सर्वा॑।
इ॒ह प्र॒जां ज॑नय॒ पत्यै॑ अ॒स्मै सु॑ज्यै॒ष्ठ्यो भ॑वत् पु॒त्रस्त॑ ए॒षः॥ २४॥
वि ति॑ न्तां मा॒तुर॒स्या उ॒पस्था॒न्नाना॑रूपाः प॒शवो॒ जाय॑मानाः।
सु॒म॒ङ्ग॒ल्युप॑ सीदे॒मम॒ग्निं संप॑त्नी॒ प्रति॑ भूषे॒ह दे॒वान्॥ २५॥

22. What rushes ye cast down, and hide ye spread under, that let the girl of good progeny mount, who finds a husband.

23. Spread under the rushes upon the red hide; sitting down upon it, of good progeny, let her worship this fire.

24. Mount the hide; sit by the fire; this god slays all the demons; here give birth to progeny for this husband; may this son of thine be of good primogeniture.

25. Let there come forth from the lap of this mother animals of various forms, being born; as one of excellent omen, sit thou by this fire; with thy husband, be thou serviceable to the gods here.

It has been indicated that the chemical energy acts like mother, the carbon is like father. They together act as assimilated carbon. From this the animals of various forms have been evolved. Accordingly the activity of the chemical energy as propitious in all respect has been indicated symbolically.

सु॒म॒ङ्ग॒ली प्र॒तर॑णी गृ॒हाणां॑ सु॒शेवा॒ पत्ये॒ श्वशु॑राय शं॒भूः।
स्यो॒ना श्व॒श्र्वै प्र गृ॒हान् वि॑शे॒मान्॥ २६॥
स्यो॒ना भ॑व॒ श्वशु॑रेभ्यः स्यो॒ना पत्यै॑ गृ॒हेभ्य॑ः।
स्यो॒नास्यै॒ सर्व॑स्यै वि॒शे स्यो॒ना पु॒ष्टायै॑षां भव॥ २७॥

सु॒म॒ङ्ग॒लीरि॒यं व॒धूरि॒मां स॒मेत॒ पश्य॑त। सौभा॑ग्यम॒स्यै द॒त्त्वा दौर्भा॑ग्यैर्वि॒परे॑तन॥२८॥
या दु॒र्हार्दो॑ युव॒तयो॒ याश्चे॒ह ज॑रती॒रपि॑। वर्चो॒ न्व॑१स्यै सं द॒त्ताथास्तं॑ वि॒परे॑तन॥२९॥
रु॒क्म॒प्रस्त॑रणं व॒ह्यं विश्वा॑ रू॒पाणि॒ बिभ्र॑तम्।
आरो॑हत् सू॒र्या सा॑वि॒त्री बृ॑ह॒ते सौभ॑गाय॒ कम्॥३०॥

26. Of excellent omen, extender of the houses, very propitious to thy husband, wealful to thy father-in-law, pleasant to thy mother-in-law, do thou enter these houses.

27. Be thou pleasant to father-in-law, pleasant to husband, to houses, pleasant to all this clan; pleasant unto their prosperity be thou.

28. Of excellent omen is this bride; come together, see her; having given unto her good-fortune, go asunder and away with ill-fortunes.

29. What evil-heated young woman, and likewise what old ones, here– do ye all now give splendor to her; then go asunder and away home.

30. The gold-cushioned vehicle, bearing all forms, did Sūrya, Savitā's daughter, mount, in order to great good-fortune.

Formation of the well developed cell has been indicated.

आ रो॑ह॒ तल्पं॑ सुमन॒स्यमा॑ने॒ह प्र॒जां ज॑नय॒ पत्ये॑ अ॒स्मै।
इ॒न्द्रा॒णीव॑ सु॒बुधा॒ बुध्य॑माना॒ ज्योति॑रग्रा उ॒षस॒: प्रति॑ जागरासि॥३१॥

31. Mount the couch with favoring mind; here give birth to progeny for this husband; like Indrani, waking with good awakening, mayest thou watch to meet dawns tipped with light.

It has been indicated that the cells divide quickly they give birth to new cells like progeny for the assimilated carbon.

दे॒वा अग्रे॒ न्य॒ पद्यन्त॒ पत्नी॒: सम॑स्पृशन्त त॒न्व॒ स्त॒नूभि॑:।
सू॒र्येव॑ नारि वि॒श्वरू॑पा महि॒त्वा प्र॒जाव॑ती॒ पत्या॒ सं भ॑वेह॒॥३२॥

32. The gods in the beginning lay with their spouses; they embraced bodies with bodies; like Sūrya, O woman, all-formed, with greatness, having progeny, unite here with thy husband.

It has been indicated that Gods-natural forces are interacting like two spouses. Accordingly it has been addressed to the woman-chemical energy to unite with the husband carbon for the progeny. Symbolically the importance of crossing over has been indicated.

Importance of Glucose has been indicated as *Viśvāvasu*-universal organic carbon.

उत्तितो विश्वावसो नमसेडामहे त्वा।
जामिमिच्छ पितृषदं न्यक्तां स तें भागो जनुषा तस्य विद्धि॥ ३ ३॥

33. Stand up from here, O Viśvāvasu; with homage do we praise thee; seek thou a sister sitting among the Fathers, inserted; that is thy portion by right of birth; know thou that.

Viśvavasu represents the assimilated carbon-glucose. His sister is a symbolic expression for the triose-sugar.

अप्सरसः सधमादं मदन्ति हविर्धानमन्तरा सूर्यं च।
तास्ते जनित्रमभि ताः परेहि नमस्ते गन्धर्वर्तुना कृणोमि॥ ३ ४॥

34. The Apsarases revel a joint reveling, between the oblation-holder and the sun; they are thy birthplace; go away to them; homage I pay thee with the Gandharva-season.

It has been indicated that *Apsarases*-the cyclic metabolic reactions are having a close relationship with the *Viśvāvasu*-glucose. The reactions operate in the protoplasm-*Gandharva* under seasonal variations.

नमो गन्धर्वस्य नमसे नमो भामाय चक्षुषे च कृण्मः।
विश्वावसो ब्रह्मणा ते नमोऽभि जाया अप्सरसः परेहि॥ ३ ५॥

35. Homage to the Gandharva's mind, and homage to his terrible eye we pay; O Viśvāvasu, homage to thee with worship; go away unto thy wives, the Apsarases.

It has been addressed to the glucose symbolically to take part in the cyclic biochemical reactions. The *Apsareses* represents cyclic reactions, which have been termed as wives of the *gandharva*-protoplasm.

राया वयं सुमनसः स्यामोदितो गन्धर्वमावीवृताम।
अगन्त्स देवः परमं सधस्थमगन्म यत्र प्रतिरन्त आयुः॥ ३ ६॥

36. With wealth may we be well-willing; we have made the Gandharva go up from here; that god hath gone to the highest station; we have gone where they lengthen out [their] life-time.

We have made the Gandharva go up from- it is an indication for the preparation of the cell for the crossing over, because during the crossing over first the protoplasm is not visible and the chromosomes are visible. It has been indicated.

सं पि॑तरा॒वृत्त्वि॑ये सृजेथां मा॒ता पि॒ता च॒ रेत॑सो भवाथः।
मर्य॑ इव॒ योषा॒मधि॑रोहयैनां प्र॒जां कृ॑ण्वाथामि॒ह पु॑ष्यतं र॒यिम्॥३७॥

37. Unite, O ye parents, the things that are seasonable; ye shall be mother and father of seed; as a male a female, do thou mount her; make ye progeny; here enjoy wealth.

For the union of the chromosomes through mother and father, the crossing over has been indicated.

तां पू॑षञ्छि॒वत॑मा॒मेर॑यस्व॒ यस्यां॒ बीज॑ं मनु॒ष्या॒३ वप॑न्ति।
या न॑ ऊ॒रू उ॑श॒ती वि॒श्रया॑ति॒ यस्या॑मु॒शन्त॑ः प्र॒हरे॑म॒ शेप॑ः॥३८॥

38. Send, O Puṣan, her, most propitious, in whom men scatter seed; who, eager, shall part our thighs; in whom we, eager, may insert the member.

It has been indicated that through *Puṣan*-nourishment the most propitious female body has been developed, where man scatter seed fur progeny.

आ रो॑हो॒रुमुप॑ धत्स्व॒ हस्तं॒ परि॑ ष्वजस्व जा॒यां सु॑मन॒स्यमा॑नः।
प्र॒जां कृ॑ण्वाथामि॒ह मोद॑मानौ दी॒र्घं वा॒मायु॑ः सवि॒ता कृ॑णोतु॥३९॥

39. Mount thou the thigh; apply the hand; embrace thy wife with well-willing mind; make ye progeny here, enjoying; let Savitā make for you a long life-time.

Union for progeny has been indicated.

आ वा॑ं प्र॒जां ज॑नयतु प्र॒जाप॑तिरहोरा॒त्राभ्यां॒ सम॑नक्त्वर्य॒मा।
अदु॑र्मङ्ग॒ली पतिलो॒कमा वि॑शे॒मं शं नो॑ भव द्वि॒पदे॒ शं चतु॑ष्पदे॥४०॥

40. Let Prajāpati generate progeny for you; let Aryman unite [you] with days-and-night; not ill-omened, enter thou this world of thy husband; be weal to our bipeds, weal to [our] quadrupeds.

It has been indicated that the lord of beings-*Prajāpati*-fundamental energy generates the progeny and *Aryaman* under go transformation for the favor of assimilated carbon. It may be auspicious for the bipeds-men-women and quadrupeds-animals, accordingly the evolution has been indicated.

दे॒वैर्द॒त्तं मनु॑ना सा॒कमे॒तद् वाधू॑यं॒ वासो॑ व॒ध्व॒श्च॒ वस्त्र॑म्।
यो ब्र॒ह्मणे॑ चिकि॒तुषे॒ ददा॑ति॒ स इद् रक्षां॑सि॒ तल्पा॑नि हन्ति॥४१॥
यं मे॑ द॒त्तो ब्र॑ह्मभा॒गं व॑धू॒योर्वाधू॑यं॒ वासो॑ व॒ध्व॒श्च॒ वस्त्र॑म्।
यु॒वं ब्र॒ह्मणे॑ऽनु॒मन्य॑मानौ॒ बृह॑स्पते सा॒कमिन्द्र॑श्च द॒त्तम्॥४२॥
स्यो॒नाद्यो॒नेरधि॒ बुध्य॑मानौ हसामु॒दौ मह॑सा॒ मोद॑मानौ।
सु॒गू सु॑पु॒त्रौ सु॑गृ॒हौ त॑राथो जी॒वावु॒षसो॑ विभा॒तीः॥४३॥
नवं॒ वसा॑नः सुर॒भिः सु॒वासा॑ उ॒दागां॑ जी॒व उ॒षसो॑ विभा॒तीः।
आ॒ण्डात् प॑त॒त्रीवा॑मुक्षि॒ विश्व॑स्मा॒देन॑स॒स्परि॑॥४४॥

41. This bridal garment and bride's dress, given by the gods together with Manu, whoso gives to a knowing priest, he verily slays the demons of the couch.

42. What priest's portion they give to me the bride-seeker, the bridal garment and bride's dress, do ye O Bṛhaspati and Indra, assenting, together give it to the priest.

43. Awaking out of a pleasant lair, mightily enjoying your-salves, merry, having good kine, good sons, good houses, may ye, living, pass the outshining dawns.

44. Clothing myself anew, fragrant, well-dressed, I have risen alive unto the outshining dawns; as a bird from the egg, I have been released out of all sin.

Formation of the new cell body with birth has been indicated.

आप॑ः स॒प्त सुस्रुवुर्दे॒वीस्ता नो॑ मुञ्च॒न्त्वंह॑सः॥४५॥
सू॒र्याय॑ दे॒वेभ्यो॑ मि॒त्राय॒ वरु॑णाय च।
ये भू॒तस्य॒ प्रचे॑तस॒स्तेभ्य॑ इ॒दम॑करं॒ नम॑ः॥४६॥
य ऋ॒ते चि॑दभि॒श्रिष॑ः पु॒रा ज॒त्रुभ्य॑ आ॒तृद॑ः।
संधा॑ता सं॒धिं म॒घवा॑ पुरू॒वसु॒र्निष्क॑र्ता॒ विह्रु॑तं॒ पुन॑ः॥४७॥
अपा॒स्मत् तम॑ उच्छतु॒ नीलं॑ पि॒शङ्ग॑मु॒त लोहि॑तं॒ यत्।
नि॒र्द॒हनी या पृ॑षात॒क्य॑३स्मिन् तां स्था॒णावध्या सं॑जामि॥४८॥

याव॑तीः कृ॒त्या उ॑प॒वास॑ने॒ याव॑न्तो॒ राज्ञो॒ वरु॑णस्य॒ पाशा॑ः।
व्यृ॒द्धयो॒ या अस॑मृद्धयो॒ या अ॒स्मिन् ता स्था॒णावधि॑ सादयामि॥४९॥
या मे॑ प्रि॒यत॑मा त॒नूः सा मे॑ बिभाय॒ वास॑सः।
तस्याग्रे॒ त्वं व॑नस्पते नी॒विं कृ॑णुष्व॒ मा व॒यं रि॑षाम॥५०॥
ये अन्ता॒ याव॑ती॒ः सिचो॒ य ओत॑वो॒ ये च॒ तन्त॑वः।
वासो॒ यत् पत्नी॑भिरु॒तं तन्न॑ः स्यो॒नमुप॑ स्पृशात्॥५१॥

45. Beautiful [are] heaven-and-earth, pleasant near by, of great courses; seven divine waters have flowed; let them free us from distress.

46. Unto Sūrya, unto the gods, unto Mitra and Varuṇa, unto them who are forethoughtful of that which exists, have I paid this homage.

47. He who, without a clamp, before the piercing of the neck-ropes, combines a combination– he the bountiful, the one of much goodṭ removes again what is spoiled.

48. Away from us let the darkness shine, that is deep blue, brown, also red; she who is consuming, spotted, her I fasten on this pillar.

49. How many witchcrafts in the outer garment, how many fetters of king Varuṇa, what failures, what non-successes– then I cause to sit upon this pillar.

50. What is my dearest self, that of me is afraid of the garment; of it do thou, O forest-lord, make first for thyself an inner wrap; let us not suffer harm.

51. What ends [there are], how many edges, what webs, and what lines; what garment woven by the spousesṭmay that touch us pleasantly.

Formation of the food chains and the food webs in the nature have been indicated.

शुम्भ॑नी॒ द्यावा॑पृथि॒वी अन्ति॑सुम्ने॒ महि॑व्रते।
उ॒शतीः क॒न्यला॑ इ॒माः पि॑तृलो॒कात् पतिं॑ यतीः। अव॑ दी॒क्षाम॑सृक्षत॒ स्वाहा॑॥५२॥
बृह॒स्पति॒नाव॑सृष्टां॒ विश्वे॑ दे॒वा अ॑धारयन्।
वर्चो॒ गोषु॒ प्रवि॑ष्टं॒ यत् तेने॒मां सं सृ॑जामसि॥५३॥

52. Eager, these young girls, going to a husband from the father's world, have let go the consecration: hail !

53. Her, let go by Bṛhaspati, all the gods maintained; what splendor is entered into the kine, with that do we unite this woman.

It has been indicated in the succeeding verse that in the living beings the functions of the chemical energy is controlled by the nucleus- *Bṛhaspati* under the natural forces. Accordingly all the functions have been attributed to the chemical energy.

बृह॒स्पति॒न:व॑सृष्टां॒ विश्वे॑ दे॒वा अ॑धारयन्।
तेजो॒ गोषु॒ प्रवि॑ष्टं॒ यत् तेने॒मां सं सृ॑जामसि॥५४॥
बृह॒स्पति॒नाव॑सृष्टां॒ विश्वे॑ दे॒वा अ॑धारयन्।
भगो॒ गोषु॒ प्रवि॑ष्टो॒ यत् तेने॒मां सं सृ॑जामसि॥५५॥
बृह॒स्पति॒नाव॑सृष्टां॒ विश्वे॑ दे॒वा अ॑धारयन्।
यशो॒ गोषु॒ प्रवि॑ष्टं॒ यत् तेने॒मां सं सृ॑जामसि॥५६॥
बृह॒स्पति॒नाव॑सृष्टां॒ विश्वे॑ दे॒वा अ॑धारयन्।
पयो॒ गोषु॒ प्रवि॑ष्टं॒ यत् तेने॒मां सं सृ॑जामसि॥५७॥
बृह॒स्पति॒नाव॑सृष्टां॒ विश्वे॑ दे॒वा अ॑धारयन्।
रसो॒ गोषु॒ प्रवि॑ष्टं॒ यत् तेने॒मां सं सृ॑जामसि॥५८॥
यदी॒मे के॒शिनो॒ जना॑ गृ॒हे ते॑ स॒मन॑र्तिषू॒ रोदे॑न कृण्व॒न्तो॒३॑घम्।
अ॒ग्निष्ट्वा॒ तस्मा॒देन॑सः सवि॒ता च॒ प्र मु॑ञ्चताम्॥५९॥
यदी॒यं दु॑हि॒ता तव॑ विके॒श्यरु॑दद् गृ॒हे रोदे॑न कृण्व॒त्य॑१घम्।
अ॒ग्निष्ट्वा॒ तस्मा॒देन॑सः सवि॒ता च॒ प्र मु॑ञ्चताम्॥६०॥
यज्जा॒मयो॒ यद्यु॑व॒तयो॑ गृ॒हे ते॑ स॒मन॑र्तिषू॒ रोदे॑न कृण्व॒तीर॒घम्।
अ॒ग्निष्ट्वा॒ तस्मा॒देन॑सः सवि॒ता च॒ प्र मु॑ञ्चताम्॥६१॥
यत् ते॑ प्र॒जायां॑ प॒शुषु॒ यद्वा॑ गृ॒हेषु॒ नि॑ तमघ॒कृद्भि॑र॒घं कृ॒तम्।
अ॒ग्निष्ट्वा॒ तस्मा॒देन॑सः सवि॒ता च॒ प्र मु॑ञ्चताम्॥६२॥
इ॒यं नार्युप॑ ब्रू॒ते पूल्या॑न्यावपन्ति॒का।
दी॒र्घायु॑रस्तु मे॒ पति॒र्जीवा॑ति श॒रद॑ः श॒तम्॥६३॥
इ॒हेमावि॑न्द्र सं नु॑द चक्रवा॒केव॒ दम्प॑ती।
प्र॒जयै॑नौ स्वस्त॒कौ विश्व॒मायु॒र्व्य॒ श्नुताम्॥६४॥

54. Her, let go etc. etc.; what brilliancy is entered etc. etc.

55. Her, let go etc. etc.; what fortune is entered etc. etc.

56. Her, let go etc. etc.; what glory is entered etc. etc.

57. Her, let go etc. etc.; what milk is entered etc. etc.

58. Her, let go etc. etc.; what sap is entered etc. etc.

59. If these hairy people have danced together in thy house, doing evil with wailing– from that sin let Agni and Savitā release thee.

60. If this daughter of thine has wailed with loosened hair in thy house, doing evil with wailing– from that sin etc. etc.

61. If sisters, if young women, have danced together in thy house, doing evil with wailing– from that sin etc. etc.

62. If in thy progeny, in thy cattle, or in thy houses is settled any evil done by the evil-doers– from that sin etc. etc.

63. This woman, scattering shriveled grains appeals: be my husband long-lived; may he live a hundred autumns.

64. Here, O Indra, do thou push together these two spouses like two cakravakas; let them, with [their] progeny, well-homed, live out all their life-time.

It has been indicated that the assimilated carbon is working in the nature like two spouses in a cyclic fashion like two *cakravākas.*

यदा॑स॒न्द्यामु॑प॒धाने॒ यद् वो॑प॒वास॑ने कृ॒तम्।
वि॒वा॒हे कृ॒त्यां यां च॒क्रुरा॒स्नाने॒ तां नि द॑ध्मसि॥६५॥
यद् दु॑ष्कृ॒तं यच्छम॑लं विवा॒हे व॑ह॒तौ च॒ यत्।
तत् सं॑भ॒लस्य॑ कम्ब॒ले मृ॒ज्महे॑ दुरि॒तं व॒यम्॥६६॥
सं॒भ॒ले मलं॑ सादयि॒त्वा क॑म्ब॒ले दु॑रि॒तं वयम्।
अभू॑म य॒ज्ञिया॑ः शु॒द्धाः प्र ण॒ आयूं॑षि तारिषत्॥६७॥
कृ॒त्रिम॒ः कण्ट॑कः श॒तद॒न् य ए॒षः।
अपा॒स्याः केश्य॒ं मल॒मप॑ शीर्ष॒ण्य॒ं लिखात्॥६८॥
अङ्गा॑दङ्गाद् व॒यम॒स्या अप॒ यक्ष्म॒ं नि द॑ध्मसि।
तन्मा प्राप॑त् पृथि॒वीं मोत दे॒वान् दिव॒ं मा प्राप॑दु॒र्व॑ऽ॒न्तरि॑क्षम्।
अ॒पो मा प्राप॒न्मल॑मे॒तद॑ग्ने य॒मं मा प्राप॑त् पि॒तॄंश्च॒ सर्वा॑न्॥६९॥
सं त्वा॑ नह्यामि॒ पय॑सा पृथि॒व्याः सं त्वा॑ नह्यामि॒ पय॒सौष॑धीनाम्।
सं त्वा॑ नह्यामि प्र॒जया॒ धने॑न॒ सा संन॑द्धा सनुहि॒ वाज॒मेमम्॥७०॥
अमो॒ऽहम॑स्मि॒ सा त्वं सामा॒हम॒स्म्यृक् त्वं द्यौर॒हं पृ॑थि॒वी त्वम्।
तावि॒ह सं भ॑वाव प्र॒जामा ज॑नयावहै॥७१॥

ज॒नि॒यन्ति॑ ना॒वग्र॑वः पु॒त्रि॒यन्ति॑ सु॒दान॑वः।
अरि॑ष्टासू सचेवहि बृह॒ते वाज॑सातये॥७२॥
ये पि॒तरो॑ वधूद॒र्शा इ॒मं व॑ह॒तुमा॒ग॑मन्।
ते अ॒स्यै व॒ध्वै संप॑त्न्यै प्र॒जाव॒च्छर्म॑ यच्छन्तु॥७३॥
येदं पूर्वाग॑न् रश॒ना॒यमा॑ना प्र॒जाम॒स्यै द्रवि॑णं चे॒ह द॒त्त्वा।
तां व॑ह॒न्त्वग॑त॒स्यानु॒ पन्थां॑ वि॒राडि॒यं सु॑प्र॒जा अत्य॑जैषीत्॥७४॥
प्र बु॑ध्यस्व सु॒बुधा॒ बुध्य॑माना दीर्घायु॒त्वाय॑ श॒तशा॑रदाय।
गृ॒हान् ग॑च्छ गृ॒हप॑त्नी॒ यथासो॑ दी॒र्घं त॒ आयुः॑ सवि॒ता कृ॑णोतु॥७५॥

65. What is done on the chair, on the cushion, or what on the covering; what witchcraft they have made at the wedding– that do we deposit in the bath.

66. What ill deed, what pollution at the wedding, and what on the bridal car– that difficulty do we wipe off on the dress of the wooer.

67. Having settled the defilement on the wooer, the difficulty on the dress, we have become worshipful, cleansed; may he extend our life-times.

68. The artificial hundred-toothed comb (?) that is here shall scratch away the defilement of the hair of her, away that of her head.

69. Away from every limb of her do we deposit the yakṣma; let that not attain the earth nor the gods; let it not attain the heaven , the wide atmosphere; let that defilement not attain the waters, O Agni; let it not attain Yama and all the Fathers.

70. I gird thee with the milk of the earth; I gird thee with the milk of the herbs; I gird thee with progeny, with riches; do thou, being girded, win this strength.

71. He am I, she thou; chant am I, verse thou; heaven I, earth thou; let us come together here; let us generate progeny.

72. The unmarried if us seek a wife, the liberal seek a son; may we, with uninjured life-breath, be companions, in order to what is great, to winning of strength.

73. What bride-beholding Fathers have come to this bridal-car, let them bestow on this bride, with her husband, protection accompanied with progeny.

74. She who hath come hither before, girdling herself (?), having *given to this woman here progeny and property– her let them carry along the road of what is not gone; this one, a viraj, having progeny, hath conquered.*

75. Continue thou awake, waking with good awakening, unto length of life of a hundred autumns; go to the houses that thou mayest be house-mistress; let Savitā make for thee a long life-time.

It has been indicated the chemical energy continuously remain fresh through out the life time, where *Savitā*– enzymes as stimulator grant it a long life time in the living beings.

It has been indicated in a symbolic fashion that due to the assimilated carbon, the world of the living beings came in to the existence through evolution. Where assimilated carbon with chemical energy is everywhere and working in an integrated cyclic manner just like husband and wife work together in a family.

k. Conclusion

The whole play of life on the earth is due to the carbon assimilation. It is commonly known as photosynthesis. It is a unique event in the history of origin of life on the earth. It is the only source of the chemical energy and organic carbon of the living beings on the earth. The assimilated carbon, move in to the living beings as immortal. The chemical energy has been termed as wife and the carbon as husband. They together synthesize the assimilated carbon. Accordingly the living beings have been evolved on the earth. They have been termed as their progeny. Due to the carbon assimilation, the nature has the food chains and food webs. Accordingly it has been said ***"Vasudhaiva Kuṭuṁbakam"*** the earth is one family.

5. Origin of Life energy

It is a fact that the fundamental energy is the original source of the creation. From it the different components of the nature have been synthesized, through energy transformation under temperature ţpressure gradient. The first cell has been synthesized in the water at its own under natural conditions, with energy transformation in side a closed system. It has acquired life energy. The life energy can be generated due to the movements of the charged particles in side a closed system. This energy is the first symbol of life. With the evolution of the living beings in the nature- the life-energy is also having its evolution. It gradually attains stability in the young cells, with the metabolic reactions. It under go gradually towards its end through aging of the cells.

In a atom positively charged protons and neutrons constitute the nucleus, around which vibrating clouds of negative charged electrons move in elliptical orbits. Due to the vibratory movements and spin of electrons, magnetic energy generates. The magnetic energy with the electrostatic energy of nucleus produces electromagnetic energy. It bind the atoms of similar nature. The atoms of different elements can produce diatomic molecules, even poly atomic complex molecules and chains of thousand of atoms like RNA (Ribose Nucleic Acid) and DNA (Deoxy ribose Nucleic Acid) may be produced. They are the products of chemical interactions of the outermost electrons to yield chemical bond or a covalent bond. When two atoms share electrons or ionic bond or when electrons are transferred from one atom to another atom. It is the electromagnetic energy, which initiate the formation of the bonds. Through these bonds the electromagnetic energy has maintained its continuity in atoms, molecules and matter. The synthesis and disintegration of the matter depends on the bond energy. Hence the creation is a self sufficient and self regulated system. In the nature the life cycles of the living beings operate in a cyclic manner.

They operate through bio-geo-chemical cycle in the nature and depend on the bond energy.

In the same manner the magnetic energy has been generated, due to streaming of protoplasm, in the closed systems of cellular organism. It has maintain, its continuity through the replication of cells, it became complicated with the evolution of complex multi-cellular organisms. With aging of the cells the streaming of protoplasm stop and the cells become physically dead.

In the higher plants the life energy get assistance through ascent of sap, it increases the duration of life cycle. It means due to the ascent of sap in the plants, the magnetic energy has been generated. It is the source of life energy, accordingly the concern organs became dead with blocking of the ascent of sap and life energy disappears.

It means the life energy is self generated, it disappears with aging of the concern organs and cells.

This beautiful one (F) (is) unaging, an immortal in the house of a mortal; for whom she (was) made, he lies; he who made (her) grew old. (Ath. 10-8-26)[1]

The life energy has been described as beautiful, un-aging and immortal. It has been indicated that with the reproductive capacity of the cells, the life energy became young through cell division and the old cells under go aging. The newly formed cells survive in the nature and the old cells became inactive with aging. It has been indicated by; *for whom she (was) made, he lies; he who made (her) grew old.*

Both their father are also their son; both the chief are also the meanest (Kaniṣtha) of them; the one god, who has entered in to the mind, born the first, and he within the womb. (Ath. 10-8-28)[2]

The fundamental energy has been generated first in the atoms and in the womb. It has been termed as first born, than the

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१. इ॒यं क॑ल्या॒ण्य१॑जरा॒ मर्त्य॑स्या॒मृता॑ गृ॒हे।
यस्मै॑ कृ॒ता श॒ये॒ स य॒श्च॒कार॑ ज॒जार॒ सः॥२६॥

२. उ॒तैषां॑ पि॒तोत वा॑ पु॒त्र ए॑षामु॒तैषां॑ ज्ये॒ उ॒त वा॑ कनि॒ :।
एको॑ ह दे॒वो मन॑सि॒ प्रवि॑ष्टः प्र॒थ॒मो जा॒तः स उ॒ गर्भे॑ अ॒न्तः॥२८॥

fundamental energy proliferate along with the electrostatic energy of the nucleus as electromagnetic bond energy. They together have been termed as both the father and their son metaphorically. The electromagnetic energy is present in the universe and at the micro level it is present in the atoms. Hence it has been termed as chief as well as minute (*kaniṣṭha*)

The full from the full he bends up (ud-ac); the full is poured with the full; also that may we know today, whence that is poured out. (Ath. 10-8-29)[1]

It has been indicated that the fundamental energy is complete in it self and it remains constant in all the state. "Whence that is poured out", it means one should know when it has been generated first. The answer has been given through the first born in the womb (centre). It means due to the movement of the electrons around the nucleus and due to the movement of the cytoplasm around the nucleus in a cell. It has been generated at its own first.

Origin of life energy

The Steed-life energy, which is first mounted by *Indra,* through the movement of charged particles has been described metaphorically as war horse of *Aśvamegha yajña.* In the *Aśvamegha yajña*, a horse is send as a symbol of victory over other states. The horse is to be sacrificed after victory, his ornaments, trappings, coverings, cords and ropes to bind him. They have been described metaphorically to indicate the cork, bark and the cell wall of the *Ṛbhu*-cell with life energy. The cooking of the flesh, during his journey, cooking vessels, covers and dishes its distribution after it. They are the metaphors to indicate the functions of the cell in the nature with its metabolic reactions. It come to rest with aging.

The first cell has been synthesized in the seawater and has been termed as *Ṛbhu* and the life energy as Steed.

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१. पूर्णात् पूर्णमुदंचति पूर्णं पूर्णेन सिच्यते।
उतो तदद्य विद्याम यतस्तत् परिषिच्यते॥ २९॥

यदक्र॑न्दः प्रथ॒मं जाय॑मान उ॒द्यन्त्स॑मु॒द्रादु॒त वा॒ पुरी॑षात्।
श्ये॒नस्य॑ प॒क्षा ह॑रि॒णस्य॑ बा॒हू उ॑प॒स्तुत्यं॒ महि॑ जा॒तं ते॑ अर्वन्।।१।।

1. What time, first springing into life, thou neighedst, proceeding from the sea or upper waters,

Limbs of the deer hadst thou, and eagle pinions, O steed, thy birth is high and must be louded. (Ṛg. 1-163-1)

It has been asked that at what time the *Ṛbhu* has sprang in to life, the answer has been given that life has been originated first in the sea or upper water. The life energy is having a speed like an eagle or Deer. The birth of life is very high, it must be welcome loudly

य॒मेन॑ द॒त्तं त्रि॒त ए॑नमायु॒नगिन्द्र॑ एणं प्रथ॒मो अध्य॑तिष्ठत्।
ग॒न्ध॒र्वो अ॑स्य रश॒नाम॑गृभ्णा॒त्सूरा॒दश्वं॑ वस॒वो निर॑तष्ट।।२।।

2. This steed which, Yama gave hath Trita harnessed, and him, the first of all, hath Indra mounted.

His bridle the Gandharva grasped. O Vasus, from out the Sun ye fashioned forth the Courser. (Ṛg. 1-163-2)

It has been expressed that the Steed of life is *Trita* harnessed, which has been given by *Yama*, it is an indication towards the three stages of life- childhood, young and old age. The *Yama* represents chromosome, the chromosomes have the information for the development of the physical body, as such it has been said that it has been given by *Yama*, the life has been first mounted by *Indra. The Indra* represents electicity, in the early stages due to the movements of the charged particles in the developing coaservates, the life energy has been generated.Hence it has been said that Indra has mounted first. It has been grasped by *Gandharva* as bridle, the *Gandharva* represents viscous mass of protoplasm, due to the streaming movements of the protoplasm life energy has its existence in the cell, when streaming get blocked, the life energy disappear, hence it has been said that the life energy has been grasped by *the Gandharva* as bridle, where bridle is metaphor for the life energy. *O Vasus*, it is an expression for the a-biotic substances, which have synthesized the *Ṛbhu*- cell in the water first, The sun is the main energy source on the earth, hence it has been said that the Courser-the cell has been fashioned by the sun.

असि॑ य॒मो अस्या॑दि॒त्यो अ॑र्व॒न्नसि॑ त्रि॒तो गुह्ये॑न व्र॒तेन॑।
असि॒ सोमे॑न स॒मया॒ विपृ॑क्त आ॒हुस्ते॒ त्रीणि॑ दि॒वि बन्ध॑नानि।।३।।

3. Yama art thou, O horse; thou art Āditya; Trita art thou by secret operation.

Thou art divided thoroughly from Soma. They say thou hast three bonds in heaven that hold thee.

Yama art thou, O horse; thou art Āditya; Trita art thou by secret operation. Due to the vigorous nature of the *Ṛbhu*-cell in the nature, the *Ṛbhu* has been called as Steed metaphorically. It's take part in the creation sacrifice. It came in to the existence from the *Yama*-chromosome, under space, time and environmental conditions, it has been indicated by the twelve *Āditya*-twelve months, hence it has been said that thou art *Yama, thou art Āditya, Trita art thou* by secret operation,– it indicates about the synthesis of *Ṛbhu*-cell due to the Triple bond of the nucleotide pairs of the DNA. The genetic material, DNA has the information for the synthesis of the physical body. It bears the hereditary characters to synthesize the cell in nature.

Thou art divided thoroughly from Soma it means the whole synthesis is due to the Soma- magnetic energy, they say thou hast three bonds in heaven, which hold thee, it means Ozone layer in the atmosphere, which absorbs the ultra violet Rays and due to which life is present on the earth.

त्रीणि॑ त आहुर्दि॒वि बन्ध॑नानि॒ त्रीण्य॒प्सु त्रीण्य॒न्तः स॑मु॒द्रे।
उ॒तेव॑ मे॒ वरु॑णश्छन्त्स्यर्व॒न्यत्रा॑ त आ॒हुः प॑र॒मं ज॒नित्र॑म्।।४।।

4. Three bonds, they say, thou hast in heaven that bind thee, three in the waters, three within the ocean.

To me thou seemest Varuṇa, O Courser there where they say is thy sublimest birth place.

It has been expressed that *Ṛbhu*-cell has three bonds in heaven, it represents ozone layer in the atmosphere, due to the presence of Ozone layer in the upper atmosphere life is present on the earth. The Ozone layer absorbs the high energetic Ultraviolet Rays, and only visible light come on the earth's surface. The three bonds in the water, it means two hydrogen and a single bond of oxygen, they form the water, the water is a life resource for the *Ṛbhu*-cell. The three bonds within the ocean, it means in the ocean of life, the *Trita* triple bond of the nucleotide pair on the DNA strips is main source of the development.

To me thou seems *Varuṇa. The Ṛbhu looks like Varuṇa.* It indicates that the cellular mass came in to the existence, due to the gravity and aggregation of the materialistic substances as a sublimate unit. The Courser- life energy has its birth place in it. It has been indicated that after the aggregation of the materialistic substances in the viscous mass, due to the streaming movements of the mass, the life energy as Courser has its birth.

इ॒मा ते॑ वाजिन्नव॒मार्ज॑नानी॒मा श॒फानां॑ सनि॒तुर्नि॒धाना॑।
अत्रा॑ ते भ॒द्रा र॑श॒ना अ॑पश्यमृ॒तस्य॒ या अ॑भि॒रक्ष॑न्ति गो॒पाः।।५।।

5. Here Courser, are the places where they groomed thee, here are the traces of thy hoofs as winner.

Here I have seen the auspicious reins that guide thee, which those who guard the holy law keep safely. (Ṛg.1-163-5)

In an anthropomorphic manner, it has been expressed that here in the sea of life, the *Ṛbhus* have the places, where the abiotic substances have groomed the *Ṛbhus*-cells in the physical form. These are the traces of thy hoofs, it means, the physical biological world has its existence due to the active part of life energy in the living beings. *The auspicious reins*-represents the two strips of DNA, They guide the *Ṛbhus* with hereditary characters in life on the path of their journey and guard the holy law safely. They maintain the equilibrium in the nature through synthesis and degradation through oxidation and reduction, hence it has been said that they guard holy law.

How the life energy has been generated first, it has been indicated in the hymns, which deals with the origin of life.

They who for Indra, *with their mind formed horses harnessed by a* *word. Attained by works to sacrifice.* (Ṛg.1-20-2)[1]

How the *Ṛbhu*-cell initially came in to the existence, it has been indicated symbolically through mind and word, it signifies the rapid movements of the charged particles, it generates the sound and the vibrating sound energy grasped by the *Indra*-electrostatic energy. Hence it has been said that the *Ṛbhu* with their mind formed the horses harnessed by *the Indra.*

Which take part in the sacrifice-*Yajña*– the actions and interactions, through the series of actions and interactions, the well developed cell came in to the existence at its own.

Where metaphorically through mind and word, the seers have indicated the appearance of the coaservate drops as closed primitive system in it, *the Indra*– Electrical charge is the first, it has appeared first with its +ive and –ive charges. It has been indicated by the horses harnessed, it has given the place for movements of the charged particles for the sacrifice-actions and interactions.

Working with skill they wrought the lightly rolling car, they wrought the Bays (two charges) who bear Indra and bring great gifts.

The Ṛbhus *for their parents made life young again; and fashioned for the calf a mother by its side.* (Ṛg. 1-cxi-1)[2]

The streaming movement of the charged particles has been indicated by lightly rolling car, which is a gift of nature. The electrical charges have been expressed through the bays of *Indra.*

In the next stanza it has been said that *"The Ṛbhus for their parents made life young again; and fashioned for the calf a mother by its side"*, the developing cells have been mentioned here as calf and its mother is a symbolic expression for the nourishment. It indicates about the energy transformation in the primitive conditions, in turn the *Ṛbhus* (cells) have acquired

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१. य इन्द्राय वचोयुजा ततक्षुर्मनसा हरी। शमीभिर्यज्ञमाशत।।२।।

२. तक्षन्रथं सुवृतं विद्मनापसस्तक्षन्हरी इन्द्रवाहा वृषण्वसू।
तक्षन्पितृभ्यामृभवो युवद्वयस्तक्षन्वत्साय मातरं सचाभुवम्।।१।।

longevity in the nature with cell division.

7. *Both sides invoke him as they call on Indra when they stir forth and turn to sacrificeing.*

To us have Varuṇa and Mitra granted the Courser Dadhikras, a guide for mortals.

They-mortals, invoke from both sides in every manner *Indra*, when they turn towards sacrifice. It means during the origin of life energy, the mortal inorganic charged ions– positive and negative, when they initiate the actions and interactions. They call on *Indra,* it means they under go electrically charged activities with their opposite charges. It has been indicated by *when they stir forth and turn to sacrificing,* both sides invoke *Indra*. It is an indication of the activities of the oppositely charged particles. It has been said that *Dadhikras–* Courser is like a guide for the mortals during the journey of their life, which has been granted by *Varuṇa and Mitra* as Courser-*Dadhikra– life energy.* It means initially *Varuṇa–* mass energy of the inorganic substances accumulated in the presence of *Mitra–* visible light. They have provided the initial conditions for the origin of life energy. It has been indicated by saying that *To us have Varuṇa and Mitra granted the Courser Dadhikras–* life-energy. (Ṛg. 4-XXXIX-5)

The life energy is a form of the fundamental energy. With the evolution of the multi cellular organisms, the life energy is having a common appearance. The evolution of the living beings and their various forms are due to the evolution of the DNA (De oxy ribose Nucleic Acid). The DNA has different base sequence and the complexity of genetic code in the living-beings. They carries the hereditary characters from the parents to off-spring from one generation to other. In this way DNA in one direction regulate the course of life through hereditary characters in the living beings. On the other hand streaming of protoplasm in the living cells provides it life energy.

The metabolic reactions are its food. It gets further strength through the movement of the sap in the plants and circulation of the blood in the animals. In the human beings and in the higher animals, it gets further strength with the evolution through the development of the nervous system and the nerve impulses from the brain. Their movements and metabolic functions in the body enhance the production of life energy. They generates magnetic energy during their circular movement. They undergo deterioration with aging, the life energy disappears with the inactivity of the concern organs.

These three centres are assisted by each other and when at any one centres the flow of life energy get blocked in turn two other centres also became inactive. It is known as cellular death, cardiac arrest and mental death in the medical terminology.

In this way there are two main centres in the body one is DNA and other is life energy, both are important for the life and independent for their functions. They present simultaneously at one place with having a common purpose of life in the living beings.

The same has been indicated by the Vedic seers through a metaphor in *Ṛgveda* and *Upaniṣads*

द्वा सु॑प॒र्णा स॒युजा॒ सखा॑या समा॒नं वृ॒क्षं परि॑ षस्वजाते।
तयो॑र॒न्यः पिप्प॑लं स्वा॒द्वत्त्यन॑श्न॒न्न्यो अ॒भि चा॑कशीति।।२०।।

Two birds with fair wings, knit with bonds of friendship, in the same sheltering tree have found refuge.

One of the twins eats the sweet Fig tree's fruitage; the other eating not regardeth only. (Ṛg. 1-164-20)

On this stanza *Sāyaṇa* says that the two birds are the vital and the supreme spirit, dwelling in one body. The vital spirit enjoys the fruit or rewards of actions while the supreme spirit is merely a spectator.

Through the example of two birds on the same tree, out of which one enjoy the sweet fruit and other one is only a spectator. Here the Vedic seers have indicated about the existence of the DNA in the body. The one, who enjoy the fruit of life is DNA. It regulates the through protein synthesis. The same has been termed as *Jīvātmā– bio-soul*, and the other one is life driving energy. The life energy is synonym to the fundamental energy. The same is the supreme spirit in the body as spectator, commonly known as soul-life energy. Accordingly the soul in the body and the fundamental energy (*God*) are one and the same. Hence in the Upaniṣads it has been said that "*Atmą so Parmātmā*" it means the God and soul is one. It is *Jīvātmā*– bio soul (DNA), who bears the pains of life. It is immortal in the sense that it has maintained its continuity in the living beings and remains active through its off-springs. Hence the DNA is the same from the unicellular to multi-cellular organisms with different base sequence and number of nucleotides.

The existence of the self-generated life energy has been indicated through a metaphor.

पु॒ण्डरी॑कं॒ नव॑द्वारं त्रि॒भिर्गु॒णेभि॒रावृ॑तम्।
तस्मि॒न् यद् य॒क्षमा॑त्म॒न्वत् तद् वै ब्र॑ह्मविदो॑ विदुः॥४३॥

The lotus flower of nine doors, covered with three strands (guna)- what soulful prodigy (yakṣa) is within it, that the Brahaman-knowers know. (Ath.10-8-43)

अ॒का॒मो धीरो॑ अ॒मृत॑ः स्वय॒ंभू रसे॑न तृ॒प्तो न कुत॑श्च॒नोन॑ः।
तमे॒व वि॒द्वान् न बि॑भाय मृ॒त्योरा॒त्मानं॒ धीर॑म॒जरं॒ युवा॑नम्॥४४॥

The lotus flower of nine doors, it signifies human body with three qualities growth, reproduction and energy transformation. The presence of life energy has been indicated through *Yakṣa*. *Free from desire, wise (dhīra), immortal, self existent, satisfied with sap, not deficient in any respect- knowing that wise, unaging young soul, one is not afraid of death.* (Ath.10-8-44)

The presence of life energy has been expressed that life energy is self existent without desire, eternal, satisfied with the sap. It means the life energy gets generated at its own, through the streaming of the sap for which sap (water) is essential.

It means the life and the life energy are different, the life cycle of an individual is regulated by the hereditary characters of the DNA and the life energy is generated at its own due to the streaming of the protoplasm. In the multi cellular organisms, circulation of the blood and the nervous system assist it. In the plants movement of the sap assist it. With aging of the concern organs and the cells the life energy get disappear.

The differences, which we observe that the individual person concern are having different mentality and fate, it is due to the cycle of rebirth under the nature, where for every action there is a reaction it means every individual will have to face the consequences of his deeds with rebirth. After the death of the physical body the thought energy, which is imperishable remains in the universe. When the thought energy find its suitable language code on the duplicating DNA of the embryo, accordingly the language of the DNA decides the fate of the individual as per his past deeds. The development of the physical body will be there as per the parental hereditary characters.

How it is going on in the nature, we can trace the facts from the Vedic hymns with the help of modern Genetics.

6. Life and Rebirth

The life on the earth is a natural gift, under fundamental energy. The life energy is eternal, It appear in the cellular body with life and disappear with aging and decomposition of the cellular body with end of life.

The cellular body is the product of synthesis from the natural components. The body decompose in the nature after the end of life in the reverse manner. The system is operating in the nature through Bio-geo- chemical cycle and cell division in the living beings. As such the life and death is a natural process with evolution in the nature. Among the living-beings, the human species is highly evolved showing evolution of the mental qualities with rebirth cycle. Rebirth cycle operates through the hereditary characters in the DNA and imperishable thought language.

How it is going on in the nature, it has been indicated in a symbolic fashion in the hymns of *Ṛbhus*-cells.

a. The cellular body

चतु॑स्त्रिंशद्वा॒जिनो॑ दे॒वब॑न्धो॒र्वङ्क्री॒रश्व॑स्य॒ स्वधि॑ति॒ः समे॑ति।
अच्छि॑द्रा॒ गात्रा॑ व॒युना॑ कृणोत॒ परु॑ष्परुरनु॒घुष्या॒ वि श॑स्त॥१८॥

(Ṛg.1-162-18)

The four- and thirty ribs of the swift Charger, kin to the Gods, the slayer's hatchet pierces,

Cut ye with skill, so that the parts be flaw less, and piece by piece declaring them dissect them

The *Ṛbhus* exhibit their functions in the nature under the control of the Charger- DNA. The four and thirty ribs represents, the four bases of the DNA and thirty represents a sequence of thirty triplets, which constitute a gene. They are kin to the natural forces, the sequence of the bases may be disturbed by the natural forces or by the slayer, who can dissect it. It has been prayed that he may cut them with skill so that the parts of the cellular body may not be damaged.

The development of the physical cellular body from DNA as charger has been expressed.

ए॒क॒स्त्वष्टु॒रश्व॑स्या विश॒स्ता द्वा य॒न्तारा॑ भवत॒स्तथ॑ ऋ॒तुः।
या ते॒ गात्रा॑णामृतु॒था कृ॒णोमि॒ ताता॒ पिण्डा॑नां॒ प्र जु॑होम्य॒ग्नौ।।१९।।

Of Tvaṣṭā's Charger there is one dissector- this is the custom-two there are who guide him.

Such of his limbs as I divide in order, all these, amid the balls, in fire I offer.

Further it has been indicated that the *Tvaṣṭā*-DNA, acts as charger, it has one dissector, it means the DNA who is responsible for the physical development, it has a code as dissector and two code follow him as guide, such of his limbs. It means the triplet codes are the parts of DNA, *which I divide in order,* with this in an anthropomorphic manner, it has been indicated that through these codes in order, the body parts have been developed. They under go fire balls, it means with death of the physical body, the body will be put under fire balls with cremation.

In a symbolic fashion the importance of triplet code with triple bond of hydrogen has been indicated, where one nucleotide pair has triple hydrogen bond and other two with double bond of hydrogen. They regulate the development of the physical body, it has been expressed by saying such of his limbs *I divide in order*, It means in a systematic order, the development of the body will be there. The body will be put in the fire balls with the end of life.

मा त्वा॑ तपत्प्रि॒य आ॒त्मापि॒यन्तं॒ मा स्वधि॑तिस्त॒न्व१॒ आ ति॑ष्ठिपत्ते।
मा ते॑ गृ॒ध्नुर॑विश॒स्ता॑ति॒हाय॑ छि॒द्रा गात्रा॑ण्य॒सिना॒ मिथू॑ कः।।२०।।

20. Let not thy dear soul burn thee as thou comest, let not the hatchet linger in thy body.

Let not a greedy clumsy immolator, missing the joints, mangle thy limbs unduly.

After the death, the body may be buried in the soil. It has been prayed that, when the body proceeds on the path of decomposition, your soul may not feel pains, the sword may not injure your body, the consumers may not consume your body parts unduly. It means it has been indicated that with burial of the dead, let not your soul burn thee, it means it may not remain here with the body. After the burial of the body in the soil some greedy immolator may not misuse the dead body, it has been indicated through *Let not a greedy clumsy immolator, missing the joints, mangle thy limbs unduly.*

न वा उ एतन्म्रियसे न रिष्यसि देवाँ इदेषि पथिभिः सुगेभिः।
हरी ते युञ्जा पृषती अभूतामुपास्थाद्वाजी धुरि रासभस्य।।२१।।

No, here thou diest not, thou art not injured: by easy paths unto the Gods thou guest.

Both bays, both spotted mares are now thy fellows, and to the ass's pole is yoked the Charger. (Ṛg.1-162-21)

No, here thou dies not, it means the life energy is immortal. *Thou art not injured, you are the guest of the natural forces,* it means with the death, the physical body will under go decomposition and in a easy way the body parts will be mixed in to the nature. As such the dead body is the guest of nature.

The two bays-oppositely charged ion, both spotted mares-the two strips of DNA. It means the body components will be converted in to the ions

The water vapour has two types of ions positive and negative will follow you, it is an indication for re genesis of the cell body through bio geo chemical cycle. The two spotted mares, it is an indication towards the two strips of DNA, the DNA has been transferred to the off-springs through reproduction. Accordingly the two types of ions and DNA are the fellows of life energy. They synthesise the cell body for life energy through bio-geo-chemical cycle and DNA duplication with cell division. In the cell the life energy is bound *like to the ass's pole is yoked the charger.* The charger agency is DNA.

सुगव्यं नो वाजी स्वश्व्यं पुंसः पुत्राँ उत विश्वापुषं रयिम्।
अना-गास्त्वं नो अदितिः कृणोतु क्षत्रं नो अश्वो वनतां हविष्मान्।।२२।।

22. May this Steed bring us all-sustaining riches, wealth in good *kine, good horses, many offspring.*

Freedom from sin may Aditi vouchsafe us : the Steed with our oblations gain us worship! (Ṛg.1-162-22)

It has been prayed that with the re-genesis, this steed-*Ṛbhu* may bring us prosperity in all manner. It has been prayed that we may be free from sin. The *Aditi-* nature may protect us, accordingly the steed-*Ṛbhu*-cell body may grant us worship with oblation in the nature.

ई॒र्मान्ता॑स॒ः सिलि॑कमध्यमास॒ः सं शूर॑णासो दि॒व्यासो॒ अत्या॑ः।
हं॒सा॑इव श्रेणि॒शो य॑तन्ते॒ यदाक्षि॑षुर्दि॒व्यमज्म॒मश्वा॑ः।।१०।।

10. Symmetrical in flank, with rounded haunches, mettled like heroes, the celestial Coursers.

Put forth their strength, like swans in lengthened order, when they, the Steeds have reached the heavenly causeway. (Ṛg.1-163-10)

The *Ṛbhus* have been described like celestial Courser. They are symmetrical in function. They take part in the creation sacrifice like hero having strength like swan and reached to their natural aging on the heavenly path.

It means when the life energy disappear, the cellular body under go aging.

तव॒ शरी॑रं पतयि॒ष्ण्व॑र्व॒न्तव॑ चि॒त्तं वात॑इव॒ ध्रजी॑मान्।
तव॒ शृङ्गा॑णि॒ विष्ठि॑ता पुरु॒त्रार॑ण्येषु॒ जर्भु॑राणा चरन्ति।।११।।

11. A body formed for flight hast thou, O charger; swift as the wind in motion is thy spirit.

Thy horns are spread abroad in all directions: they move with restless beat in wildernesses.

It has been said that *Ṛbhu* has a body formed for flight in nature. The Charger is swift like wind, the motion is his spirit, his horns are spread in all directions.

It means the *Ṛbhus-* cells have a charger as DNA with life energy. His functions have been expressed as swift like wind in motion, which is the spirit of the cell body. Due to it, the cells have spread in all the directions. It has been expressed through the metaphor of horns. It means their movement is hard to check like hard horns. They are moving and working in the different forms in a restless manner in the wild and at other places.

उप॒ प्रागा॒च्छस॑नं वा॒ज्यर्वा॑ देव॒द्रीचा॒ मन॑सा॒ दीध्या॑नः।
अ॒जः पु॒रो नी॑यते॒ नाभि॑र॒स्यानु॑ प॒श्चात्क॒वयो॑ यन्ति रे॒भाः॥१२॥

12. The strong Steed hath come forward to the slaughter, pondering with a mind directed God-ward. (Ṛg.1-163-12)

It has been said that with aging the strong steed- *Ṛbhu* have come forward to the slaughter and going to merge with the natural forces. The aging is the slaughter of the *Ṛbhu*-cell. It has been indicated.

उप॒ प्रागा॑त्पर॒मं यत्स॒धस्थ॒मर्वा॒ँ अच्छा॑ पि॒तरं॑ मा॒तरं॑ च।
अ॒द्या दे॒वाञ्जुष्ट॑तमो॒ हि ग॒म्या अथा शास्ते॑ दा॒शुषे॒ वार्या॑णि॥१३॥

13. The goat who is his kin is led before him: the sages and the singers follow after.

The Steed is come unto the noblest mansion, is come unto his Father and his Mother.

This day shall he approach the Gods, most welcome: then he declares good gifts to him who offers.

It has been indicated that aging proceed gradually with the disappearance of the life energy from the cellular body-goat, the decomposition of the cell organelles follow him just like sages and singers.

Finally the life energy will be merged in to the parent fundamental energy.

The decomposition of the cellular body is a gift to the nature and for the living-beings.

It means with the end of life, the life energy will be merged in to her parent heaven and earth. The natural components will be decomposed in the nature.

b. Rebirth

The YAMA is a king of life and death. The *Yama* represents a pair of chromosome as we know that in the human beings have twenty three pairs of chromosomes. Among these one pair, who bears the genetic information about the life and death in its genetic sequence of DNA has been termed as *Yama*. The chromosomes with different strains have been termed as *Yama* and *Yamī*. It indicates about crossing over between two different strains of chromosomes. The *Yama's* two brindled dogs, with four eyes, they watch the course of life of a man. In the modern terminology they represent two strips of the DNA and four eyes symbolically indicate about the two complimentary DNA base pairs (Adenine, Guanine, Thymine and Cytosine.) A=T, G≡C. They record the deeds and thoughts in its genetic code sequence, it remains active through out the life and the language code is beyond degradation. The chromosomes and the DNA maintain their continuity in the living beings through their off-springs. The coded language of the DNA may be stimulated during the DNA duplication in the womb. The imperishable thought energy of an individual persist in the atmosphere. During the DNA duplication in the embryo, it may find its suitable language code. Accordingly the thought energy and mentality of a dead person may get re birth. The same has been indicated metaphorically, through *yama's* two four eyed dogs, who watch the path of the man. It means duplicating DNA is waiting for the rebirth.

सिनी॑वालि॒ पृथु॑ष्टुके॒ या दे॒वाना॒मसि॒ स्वसा॑।
जु॒षस्व॑ ह॒व्यमाहु॑तं प्र॒जां दे॑वि दिदिड्ढि नः।।६।।

O broad-stressed Sinīvāli thou who art the Sister of the Gods,

Accept the offered sacrifice, and, Goddess, grant us progeny. (Rg 2-32.6)

या सु॒बा॒हुः स्व॑ङ्गु॒रिः सु॒षूमा॑ बहु॒सूव॑री।
तस्यै॑ वि॒श्पत्न्यै॑ ह॒विः सि॑नीवा॒ल्यै जु॑होतन।।७।।

With lovely fingers, lovely arms, prolific Mother of many sons-

Present the sacred gifts to her, to Sinīvāli, Queen of men. (Rg 2-32-7)

The structure of the duplicating DNA has been expressed symbolically through *Sinīvāli*, who is broad hipped, fair armed, fair fingered. The broad hips represent a loop of the DNA and the two separating strips have been termed as fair arms and the projecting nucleotides have been termed as her fingers. She is Mother of many sons, it means she is related with the progeny and has been invoked with *Sarasvatī*-thought energy.

या गु॒ङ्गूर्या सि॑नीवा॒ली या रा॒का या सर॑स्वती।
इ॒न्द्रा॒णीम॑ह्व ऊ॒तये॑ वरुणा॒नीं स्व॒स्तये॑।।८।।

Her Sinīvāli, her Guṅgū, her Rākā, her, Sarasvatī, Indrāṇī to mine aid I call, and Varuṇānī for my weal. (Ṛg.2-32-8)

The *Sinīvāli* has been invoked with *Rākā, Ḳuhu- Guṅgū and Sarasvatī*, *Rākā* has been invoked for a good son. The *Rākā* represents full moon. It means a loop of the DNA is like a full moon. *Kuhu* and *Guṅgū* represents first day of moon, it means the separating DNA exhibits crescent shaped structures, they looks like first day of the moon.

It indicate that during the separation of DNA strips in the womb, the code which open is for the thought energy of an ancestor, accordingly, she has been invoked with *Sarasvatī*-thought energy.

रा॒काम॒हं सु॒हवां॑ सुष्टु॒ती हु॑वे शृ॒णोतु॑ नः सु॒भगा॒ बोध॑तु॒ त्मना॑।
सीव्य॒त्वपः॑ सू॒च्याच्छि॑द्यमानया॒ ददा॑तु वी॒रं श॒तदा॑यमु॒क्थ्य॑म्।।४।।
यास्ते॑ राके सु॒मत॑यः सु॒पेश॑सो॒ याभि॒र्ददा॑सि दा॒शुषे॒ वसू॑नि।
ताभि॑र्नो अ॒द्य सु॒मना॑ उ॒पाग॑हि सहस्रपो॒षं सु॑भगे॒ ररा॑णा।।५।।

With eulogy I call on Rākā, swift to hear: may she auspicious, hear us, and herself observe.

With never breaking needle may she sew her work, and give a hero son most wealthy, meet for praise. (Ṛg.2-32-4)

All thy kind thoughts, O Rākā, lovely in their form, wherewith thou grantest wealth to him who offers gifts.

With this come thou to us this day benevolent, O Blessed One, bestowing food of thousand sorts. (Ṛg.2-32-5)

प्रति॑ ति॒ वि॒राड॑सि॒ विष्णु॑रि॒वे॒ह स॑रस्वति।
सिनी॑वालि॒ प्र जा॑यतां॒ भग॑स्य सुम॒ताव॑सत्॥ १५॥

Stand firm; viraj *art thou; as it were,* Viṣṇu *here* O Sarasvatī; O Sinīvāli, *let her have progeny; may she be in the favor of* Bhaga. (Ath. 14-2-15)

It has been indicated that during the DNA duplication in the womb. A language initiator code is open, which is complimentary a to particular thought energy of an individual ancestor. Accordingly, the thought energy may get bind with the initiator code and regulate the life with the language of the DNA. Accordingly a dead person's thought mentality may get rebirth. So it has been prayed that to a girl, O *Sinīvāli*, O *Sarasvatī* grant her good progeny.

विष्णु॒र्योनिं॑ कल्पयतु॒ त्वष्टा॑ रू॒पाणि॑ पिंशतु।
आ सि॑ञ्चतु प्र॒जाप॑तिर्धा॒ता गर्भं॑ दधातु ते।।१।।
गर्भं॑ धेहि सिनीवालि॒ गर्भं॑ धेहि सरस्वति।
गर्भं॑ ते अ॒श्विनौ॑ दे॒वावा ध॑त्तां॒ पुष्क॑रस्रजा।।२।।
हि॒र॒ण्ययी॑ अ॒रणी॒ यं नि॒र्मन्थ॑तो अ॒श्विना॑।
तं ते॒ गर्भं॑ हवामहे द॒शमे मा॒सि सूत॑वे।।३।।.

1. May Viṣṇu *form and mould the womb, may* Tvaṣṭā *duly shape the forms.*

Prajāpati *infuse the stream and* dhātā *lay the germ for thee.*

2. O Sinīvāli *set the germ, set thou the germ* Sarasvatī. *May the twain gods bestow the germ.* The Aśvins *crowned with lotuses.*

3.That which Aśvin *the Twain rub forth with the attrition stock of gold that germ of thine we invoke that in the tenth month thou may bear.Ṛg. 10-184-1,2,3,*

In the *Ṛgveda,* it has been indicated that *Tvaṣṭā* give shapes to the infant in the womb and the germ is get set by the *Sinīvāli* and *Sarasvatī* in the womb. Accordingly *Aśvins* (nucleotide pairs) crowned with lotuses. It means the development of the children will be there according to the hereditary characters, where the *Sinīvāli* is the code initiator and the *Sarasvatī* (thought energy) opens the door of a language code. It is particular to an individual through the difference in the base sequence and the language code, which open on the DNA with birth. It means the first code, which is present on the single strand of the DNA template. It acts as the language code initiator for a particular mentality, which is particular to an individual. Due to this even the time twins have different characters and mentality. The *Aśvins* crowned with lotuses, it indicates the function of the nucleotide pairs with triple bond. It indicates the development of the physical body. It has been expressed as germ of gold metaphorically.

The rebirth may be in other forms, it has been indicated in the funeral hymns of Atharvaveda and Ṛgveda.

सूर्यं चक्षुर्गच्छतु वातमात्मा द्यां च गच्छ पृथिवीं च धर्मणा।
अपो वा गच्छ यदि तत्र ते हितमोषधीषु प्रति तिष्ठा शरीरैः॥३॥

The Sun receive thine eye, the Wind thy spirit; go, as thy merit is, to earth or heaven,

Go, if it be thy lot, unto the waters; go make thine home in plants with all thy members. (Ṛg.10-16-3)

सूर्यं चक्षुषा गच्छ वातमात्मना दिवं च गच्छ पृथिवीं च धर्मभिः।
अपो वा गच्छ यदि तत्र ते हितमोषधीषु प्रति ति ा शरीरैः॥७॥

(Atharvaveda 18-2-7)

It has been said that after the death of an individual, his eyes goes to the sun, his spirit like wind goes in heaven or earth as per his merit. It is possible according to his/her deeds. He may go in to the water or in plants. If initiator code synonym to his thought energy open on the duplicating DNA of the embryo. Accordingly the thought energy may remain attached with plants, without action.

अजो भागस्तपसा तं तपस्व तं ते शोचिस्तपतु तं ते अर्चिः।
यास्ते शिवास्तन्वो जातवेदस्ताभिर्वहैनं सुकृतामु लोकम्॥४॥

Thy portion is the goat: with heat consume him: let thy fierce flame, thy glowing splendour, burn him.

With thine auspicious forms, O Jatavedas bear this man to the region of the pious. (Ṛg.10-16-4)

The goat is metaphor for the cell body, which under go aging with decomposition in the natural sacrifice. It has been prayed that *Jātaveda Agni* may bestow him region of the pious.

अव॑ सृज॒ पुन॑रग्ने पि॒तृभ्यो॒ यस्त॒ आहु॑त॒श्चर॑ति स्व॒धाभि॑ः।
आयु॒र्वसा॑न॒ उप॑ वेतु॒ शेष॒ः सं ग॑च्छतां त॒न्वा॑ जातवेदः।।५।।

Again, O Agni, to the Fathers send him who, offered in thee, goes with our oblations.

Wearing new life let him increase his offspring: let him rejoin a body Jatavedas. (Ṛg.10-16-5)

It has been prayed to *Agni*, send the departed soul to the fathers and let him rejoin a body to increase his off-springs with new life.

पुन॑र्देहि वनस्पते॒ य ए॒ष निहि॑त॒स्त्वयि॑।
यथा॑ य॒मस्य॒ साद॑न॒ आसा॑तै वि॒दथा॒ वद॑न्।।७०।।

70. Give back, O forest tree, him who is deposited here with thee, that in Yama's seat he may sit speaking counsels.

(Atharvaveda 18-3-70)

A biosoul may get birth as plants or may attach with plants, it has been prayed that O tree, give him back, who is deposited in *Yama*'s seat-chromosome, let him rejoin a body so that he may be in speaking councils.

Ye brought the horse's head, Aśvins, and gave it unto Dadhyac the offspring of Atharvan.

True, he revealed to you, O wonder workers, sweet Soma, Tvaṣṭā's secret as your girdle. (Rg 1-CXII-22)

The secret of Bio technology is in the *Tvaṣṭā*- DNA, through which transplantation can be there, it has been indicated.

c. Cross breeding

Evolution through cross breeding in the living organisms is a fact. It has been indicated through a conversation between the *Yama* and *Yamī*. They are twin brother and sister, they represents different pairs of chromosomes and crossing over between the two different strains.

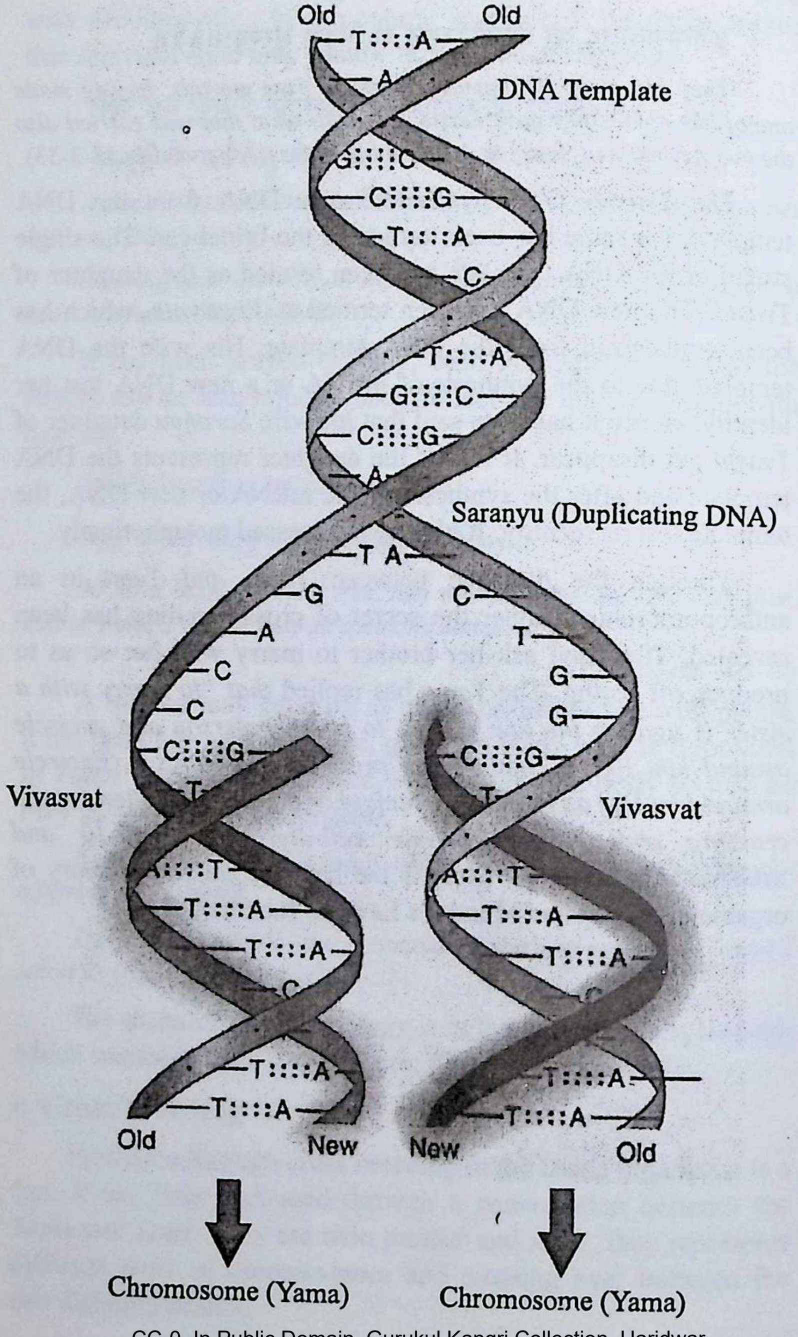
अपा॑गूहन्न॒मृतां॒ मर्त्ये॑भ्यः कृ॒त्वा सव॑र्णामदधु॒र्विव॑स्वते।
उ॒ताश्विना॑वभर॒द् यत् तदासी॒दजहादु॒ द्वा मि॑थु॒ना स॑र॒ण्यूः॥३३॥

They hid away the immortal one (f.) from mortals; having made one of like color, they gave her to Vivasvat; what that was carried also the two Aśvins; and Saraṇyu deserted two twins. (Atharvaveda 18-2-33)

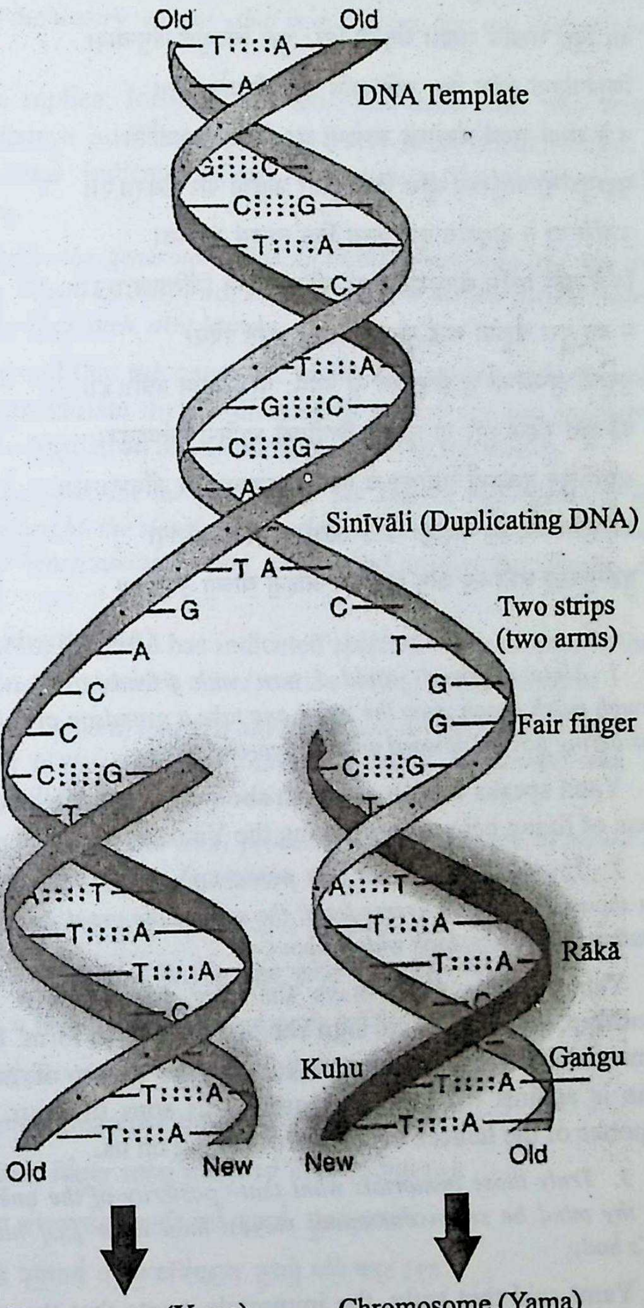
The Tvaṣṭā- DNA synthesize new DNA from the DNA template, the same has been termed as the bridal car. The single strand of the DNA template has been termed as the daughter of *Tvaṣṭā*. The new DNA has been termed as *Vivasvata*, which has been synthesized from the DNA template. His wife the DNA template due to the synthesis of mRNA or a new DNA lost her identity. Hence it has been said that his wife *Saraṇyu* daughter of *Tvaṣṭā* get disappear. It means the daughter represents the DNA template and after the synthesis of the mRNA or new DNA, the template lost its identity. It has been expressed metaphorically.

Through the dialogue between *Yama and Yamī* in an anthropomorphic manner the secret of cross breeding has been revealed. The *Yamī* ask her brother to marry with her so as to produce off spring. The *Yama* has replied *that "to marry with a sister is against the law you go to another person and encircle around him like a climber and produce off-springs." (Encircle around him like a climber is a metaphor and an indication for the crossing over during meiotic cell-division) Ṛg.10-10 and Atharva-veda 18-2,* the same is the basis of Darwin's theory of organic evolution and Mendel's Laws of Inheritance.

Tvaṣṭā (DNA)


Old
Old
T::::A
A
DNA Template
G::::C
C::::G
T::::A
C
T::::A
G::::C
C::::G
A
Saraṇyu (Duplicating DNA)
T A
G
C
A
T
C
G
C
G
C::::G
C::::G
Vivasvat
T
T
Vivasvat
A::::T
A::::T
T::::A
T::::A
T::::A
T::::A
C
T::::A
T::::A
T::::A
T::::A
Old
New
New
Old
Chromosome (Yama)
Chromosome (Yama)

DNA Duplication (Tvaṣṭā)


Old
Old
T::::A
A
DNA Template
G::::C
C::::G
T::::A
C
T::::A
G::::C
C::::G
A
Sinīvāli (Duplicating DNA)
T A
G
C
A
T
C
G
C
G
Fair finger
Two strips
(two arms)
C::::G
C::::G
T
T
A::::T
A::::T
T::::A
T::::A
T::::A
T::::A
C
Rākā
Kuhu
Gaṅgu
T::::A
T::::A
T::::A
T::::A
Old
New
New
Old
Chromosome (Yama)
Chromosome (Yama)

Further reading references

ओ चि॒त् सखा॑यं स॒ख्या व॑वृत्यां ति॒रः पु॒रू चि॑दर्ण॒वं ज॑ग॒न्वान्।
पि॒तुर्नपा॑त॒मा द॑धीत वे॒धा अधि॒ क्षमि॑ प्र॒तरं दीध्या॑नः॥ १॥
न ते॒ सखा॑ स॒ख्यं व॑ष्ट्ये॒तत् सल॑क्ष्मा॒ यद् विषु॑रू॒पा भवा॑ति।
म॒हस्पु॒त्रासो॒ असु॑रस्य वी॒रा दि॒वो ध॒र्तार॑ उर्वि॒या परि॑ ख्यन्॥ २॥
उ॒शन्ति॑ घा॒ ते अ॒मृता॑स ए॒तदेक॑स्य चित् त्य॒जसं॒ मर्त्य॑स्य।
नि ते॒ मनो॒ मन॑सि॒ धाय्य॒स्मे जन्यु॒ः पति॑स्त॒न्व॑१मा वि॑विश्याः॥ ३॥
न यत् पु॒रा च॑कृ॒मा कद्ध॑ नू॒नमृ॒तं वद॑न्तो॒ अनृ॑तं रपेम।
ग॒न्ध॒र्वो अ॒प्स्वप्या॑ च॒ योषा॒ सा नौ॒ नाभि॑ः पर॒मं जा॒मि तन्नौ॑॥ ४॥
को अ॒द्य यु॑ङ्क्ते धु॒रि गा ऋ॒तस्य॒ शिमी॑वतो भा॒मिनो॑ दुर्हृणा॒यून्।
आ॒सन्नि॑षून् हृ॒त्स्वसो॑ मयो॒भून् य ए॑षां भृ॒त्यामृ॒णध॒त् स जी॑वात्॥ ६॥
को अ॒स्य वे॑द प्रथ॒मस्याह्नः क ईं॑ ददर्श॒ क इ॒ह प्र वो॑चत्।
बृ॒हन्मि॒त्रस्य॒ वरु॑णस्य॒ धाम॒ कदु॑ ब्रव आहनो॒ वीच्या॒ नृन्॥ ७॥

(Atharvaveda 18-2-1,7)

1. Unto a friend would I turn with friendship; having gone through much ocean, may the pious one take a grandson of [his] father, considering further onward upon the earth.

Yamī speaks to Yama, whom she wishes to give a son in the ocean of living beings considering the Yama as her fried

2. Thy friend wants not that friendship of thine, that she of like sign should become of diverse form; the sons of the great Asura, heroes, sustainers of the sky, look widely about.

Yama in his reply says that thy friend loves not the friendship, that she of like sign become of diverse form. It means Yama-chromosome has expressed that the union of the same strain is against the law, look around us sons of Asur and the supporter of the heaven and sky are looking on us.

3. Truly those immortals want that– posterity of the one mortal; may thy mind be set in our mind; mayest thou enter [as] husband a wife's body.

Yamī said that truly, the immortals wants that thy mind be set in our mind, so that we may act like husband and wife.

4. What we did not do formerly, why [do that] now? speaking righteousness, should we prate unrighteousness? The Gandharva in the waters and the watery woman– that is our union, that our [du.] highest relation.

Yama replies, formerly we have not done this, why now? The Gandharva and the watery woman- that is our union, it means he has indicated their relationship like water in the protoplasm.

5. Verily, the generator made us in the womb man and spouse– god Tvaṣṭṛ, Savitā of all forms; none overthrow his ordinances; earth knows us [two] as such, also heaven.

Yamī said that the generator made us consorts in the womb, no body can violate their ordinance, it means she has indicated towards the formation of chromosome pairs in the womb.

6. Who yokes to the pole today the kine of righteousness, the diligent, the bright, the slow to wrath, that have arrows in the mouth that shoot at the heart, amiable ones? whoso shall prosper their burden, he shall live.

Yama replies, and has indicated about the law of nature, that it is a sin to marry with a sister, nature will give punishment.

7. Who knows of that first day? Who saw it? Who shall proclaim it here? Great is the ordinance dhaman of Mitra, of Varuṇa; why, O lustful one, wilt thou speak to men with deceit (Vici)

Yama said that who shall proclaim it here, that law of nature is great, why you are talking deceitfully.

य॒मस्य॑ मा य॒म्यं॑१ काम॒ आग॑न्त्समा॒ने योनौ सह॒शेय्या॑य।
जा॒येव॒ पत्ये॑ त॒न्वं॒ रिरिच्यां॒ वि चि॑द् वृहेव॒ रथ्यै॑व च॒क्रा॥८॥
न ति॑ न्ति॒ न नि मि॑षन्त्ये॒ते दे॒वानां॒ स्पश॑ इ॒ह ये चर॑न्ति।
अ॒न्येन॒ मदा॑हनो याहि॒ तूयं॒ तेन॒ वि वृ॑ह॒ रथ्यै॑व च॒क्रा॥९॥
रात्री॑भिरस्मा॒ अह॑भिर्दशस्ये॒त् सूर्य॑स्य चक्षु॒र्मुहु॒रुन्मि॑मीयात्।
दि॒वा पृ॑थि॒व्या मि॑थु॒ना सब॑न्धू य॒मीर्य॒मस्य॑ विवृहा॒दजा॑मि॥१०॥
आ घा॒ ता ग॑च्छा॒नुत्त॑रा यु॒गानि॒ यत्र॑ जा॒मय॑ः कृ॒णव॒न्नजा॑मि।
उप॑ बर्बृहि वृष॒भाय॑ बा॒हुम॒न्यमि॑च्छस्व सुभगे॒ पति॒ं मत्॥११॥

किं भ्रा॒ता॑स॒द् यद॑ना॒थं भवा॑ति॒ किमु॒ स्वसा॒ यन्निर्ऋ॑तिर्नि॒गच्छा॑त्।
काम॑मूता ब॒ह्वे॑३तद् र॑पामि त॒न्वा॒ मे त॒न्वं॑१ सं पि॑पृग्धि॥ १२॥
न तै॑ ना॒थं य॒म्यत्रा॒हम॑स्मि॒ न तै॑ त॒नूं त॒न्वा॒॑३ सं प॑पृच्याम्।
अ॒न्येन॒ मत् प्र॒मुद॑ः कल्पयस्व॒ न ते॒ भ्राता॑ सुभगे वष्ट्येतत्॥ १३॥
न वा उ॑ ते त॒नूं त॒न्वा॒॑३ सं प॑पृच्यां पा॒पमा॑हु॒र्यः स्वसा॑रं नि॒गच्छा॑त्।
अ॒सं॑यदे॒तन्मन॑सो हृ॒दो मे॒ भ्राता॒ स्वसु॒ः शय॑ने॒ यच्छ॑यीय॥ १४॥
ब॒तो ब॑तासि यम॒ नैव ते॒ मनो॒ हृद॑यं चाविदाम।
अ॒न्या कि॒ल त्वां क॒क्ष्ये॒व यु॒क्तं परि॑ ष्वजातै॒ लिबु॑जेव वृ॒क्षम्॥ १५॥
अ॒न्यमू॒ षु य॑म्य॒न्य उ॒ त्वां परि॑ ष्वजातै॒ लिबु॑जेव वृ॒क्षम्।
तस्य॑ वा॒ त्वं मन॑ इ॒च्छा स वा॒ तवाधा॑ कृणुष्व सं॒विदं॒ सुभ॑द्राम्॥ १६॥

8. Desire of Yama hath come unto me Yamī, in order to lying together in the same lair (yoni); I would fain yield (ric) my body, as wife to husband; may we whirl off, like two chariot wheels.

Yamī replies, that desire of Yama hath come to me Yamī, that we should be on one bad, I would fain my body as wife to husband, may we whirl off like two chariot wheel. It is an indication for crossing over.

9. They stand not, they wink not, those spies of the gods who go about here; with another than me, O lustful one, go quickly; with him whirl off like two chariot wheels.

Yama said, that go to another man and whirl off like two chariot wheels.

10. By nights, by days one may pay reverence (dacasy) to him; the sun's eye may open (? Un mimiyat) for a moment; with heaven, with earth paired, of near connection;– Yamī must bear the unbrotherly (djami) [conduct] of Yama.

Yamī replies, that Yamī must bear unbrotherly conduct of Yama, it means she has expressed that she will take the guilt on herself.

11. Verily there shall come those later ages (Yuga) in which next of kin (jami) shall do what is unkindly (ajami]. Put thine arm underneath a hero (vṛṣabha); seek, O fortunate one, another husband than me.

Yama said, that the days will come in later ages, when brother and sister do unnatural acts. O fair one go to another person as husband and put thine arm for thy consort.

12. What should brother be when there is no protector? or what sister, when destruction impends (ni-gam)? Impelled by desire, I prate thus much; mingle thou thy body with my body.

Yamī said that come near and embrace me, there is no sister, when destruction comes.

13. I am not thy protector here, O Yamī; I may not mingle my body with thy body; with another than me do thou prepare enjoyments; thy brother wants not that, O fortunate one.

Yama said that your brother wants not you go to another person than me for thy pleasure.

14. Verily, I may not mingle my body with thy body; they call him wicked (papa) who should approach his sister. That is not consonant (?asamyat) with my mind [and] heart, that I, a brother, should lie in a sister's bed (cayana).

Yama again said that it is sin to mingle the body with a sister. It is against the law.

15. A weakling (?Bata), alas, art thou, O Yama; we have not found mind and heart thine; verily, another woman shall embrace thee, as a girth a harnessed [horse], as twining plant (libuja) a tree.

Yamī replies that another woman shall embrace thee with speed like a twining plant (climber), it is a indication for the union of two chromosome for crossing over.

16. Another man, truly, O Yamī, another man shall embrace thee, as a twining plant a tree; either do thou seek his mind or he thine; then make for thyself very excellent concord (samvid)

Yama said truly another man shall embrace thee like a climber.

Through the conversation between Yama and Yamī, the importance of coss breeding and crossing over during the meiotic cell division has been indicated.

उ॒प द्यामु॑प॑ वे॒त॒सम॑वंत्तरो न॒दीनां॑म्। अग्नें॑ पि॒त्तम॒पामं॑सि॥५॥

5. *Unto sky (div), unto reed, more helpful of streams; O Agni, gall of the waters art thou.* (Ath. 18-3-5)

यो ममार प्रथमो मर्त्यानां यः प्रेयाय प्रथमो लोकमेतम्।
वैवस्वतं संगमनं जनानां यमं राजानं हविषा सपर्यत॥१३॥

13. Him who died first of mortals, who went forth first to that world, Vivasvant's son, assembler of people, king Yama honor ye with oblation. (Ath. 18-3-13)

देवेभ्यः कमवृणीत मृत्युं प्रजायै किममृतं नावृणीत।
बृहस्पतिर्यज्ञमतनुत ऋषिः प्रियां यमस्तन्वं१मा रिरेच॥४१॥

41. For the gods he chose death; for his progeny did he not choose immortality? Bṛhaspati seer extended the sacrifice; Yama left his dear self. (Ath. 18-3-41)

सं गच्छस्व पितृभिः सं यमेनैष्टापूर्तेन परमे व्योमन्।
हित्वावद्यं पुनरस्तमेहि सं गच्छतां तन्वा सुवर्चाः॥५८॥

58. Unite thyself (sam-gam) with the Fathers, with Yama, with thy sacred and charitable works in the highest firmament; abandoning what is reproachful, come again home;– let him himself with a body, very splendid. (Ath. 18-3-58)

ये नः पितुः पितरो ये पितामहा य आविविशुरुर्व१न्तरिक्षम्।
तेभ्यः स्वराडसुनीतिर्नो अद्य यथावशं तन्वः कल्पयाति॥५९॥

59. They that are our father's fathers, that are [his] grandfathers, that entered the wide atmosphere– for them may the autocratic (svaraj) second life today shape our bodies as he will. (Ath. 18-3-58)

विवस्वान् नो अमृतत्वे दधातु परैतु मृत्युरमृतं न ऐतु।
इमान् रक्षतु पुरुषाना जरिम्णो मो ष्वे षामसवो यमं गुः॥६२॥

62. Let Vivasvant set us in immortality; let death go away; let what is immortal come to us; let [him] defend these men until old age; let not their life-breaths (asu) go to Yama. (Ath. 18-3-62)

पुनर्देहि वनस्पते य एष निहितस्त्वयि।
यथा यमस्य सादन आसातै विदथा वदन्॥७०॥

70. Give back, O forest tree, him who is deposited here with thee, that in Yama's seat he may sit speaking counsels. (Ath. 18-3-70)

आ रभस्व जातवेदस्तेजस्वद्धरो अस्तु ते।
शरीरमस्य सं दहाथैनं धेहि सुकृतामु लोके॥७१॥

71. Take hold, O Jātavedas; let thy seizure (haras) be with sharpness (tejas); his body do thou consume; then set him in the world of the well-doing. (Ath. 18-3-71)

अति॑ द्रव॒ श्वानौ॑ सारमे॒यौ च॑तुर॒क्षौ श॒बलौ॑ सा॒धुना॑ प॒था।
अधा॑ पि॒तृन्त्सु॑वि॒दत्राँ॒ अपी॑हि य॒मेन॒ ये स॑ध॒मादं॒ मद॑न्ति॥ ११॥
यौ ते॒ श्वानौ॑ यम रक्षि॒तारौ॑ चतुर॒क्षौ प॑थि॒षदी॑ नृ॒चक्ष॑सा।
ताभ्यां॑ राज॒न् परि॑ धेह्येनं स्व॒स्त्य॒स्मा अनमी॒वं च॑ धेहि॥ १२॥
उ॒रू॒ण॒साव॑सु॒तृपा॑वुदुम्ब॒लौ य॒मस्य॑ दू॒तौ च॑रतो॒ जनाँ॒ अनु॑।
ताव॒स्मभ्यं॑ दृ॒शये सूर्याय पुनर्दातामसुमद्येह भद्रम्॥ १३॥
सोम॒ एके॑भ्यः पवते घृ॒तमेक॒ उपा॑सते।
येभ्यो॒ मधु॑ प्र॒धाव॑ति॒ तांश्चि॑दे॒वापि॑ गच्छतात्॥ १४॥

11. Run thou past the two four-eyed, brindled dogs of Sārama, by a happy (sadhu) road; then go unto the beneficent Fathers, who revel in common revelry with Yama. (Ath. 18-2-11)

12. What two defending dogs thou hast, O Yama, four-eyed, sitting by the road, men-watching, with them, O king, do thou surround him; assign to him well-being and freedom from disease. (Ath. 18-2-12)

13. Broad-nosed, feeding on lives (?asutrp), copper-colored, Yama's two messangeres to about after men (jana); let them give us back here today excellent life (asu), to see the sun. (Ath. 18-2-13)

14. Soma purifies itself for some; some wait upon (upa-as) ghee; for whom honey runs forward (?), unto them do thou go. (Ath. 18-2-14)

7. Creation– A System

The Hymns of the Supreme– *Asya-vāmīya Sūkta*

The knowledge related with the Creation. It has been expressed through the riddles and their answers are also in the form of riddles (Ṛg.1-164). The hymn has only 52 stanzas. It has full knowledge of the creation. Vedic seers, under the laws of phonetics have developed the language code in the form of metaphors and riddles, so that the maximum information may be coded in the hymns. It is also evident from the fact that during the compilation of the hymns to save a single syllable, it was equivalent to the celebration as that the birth of a male child. Accordingly it was possible to express full knowledge of the creation in only sixteen stanzas as in *Puruṣa Sūkta* (Ṛg. 10-90) or (Ṛg. 1-164), *Asya Vāmīya Sūkta*- The hymn of the Supreme.

The composer of the *sūkta* is seer *Dīrghtamas*. It gives the idea of an intellectual discussion, during the conference known as *Brahmodhya Carcā*.

The seers have raised the questions regarding the creation. The answers have been given in a similar fashion. The *sūkta* reveals the secret of the creation and life on the earth systematically.

The Solar System in the Riddles

अ॒स्य वा॒मस्य॑ पलि॒तस्य॒ होतु॒स्तस्य॒ भ्राता॑ मध्य॒मो अ॒स्त्यश्नः॑।
तृ॒तीयो॒ भ्राता॑ घृ॒तपृ॑ष्ठो अ॒स्यात्रा॑पश्यं वि॒श्पतिं॑ स॒प्तपु॑त्रम्।।१ ।।

Of this pleasant (vama) hoary invoker– of him the brother is the midmost (aśnā); his third brother is Ghee backed (Ghṛta-pṛṣṭha); there I saw the seven sons of chief of the world. (Ṛg. 1-164-1)

The first riddle gives the idea about creation that the supreme fundamental energy, which has been invoked in the creation sacrifice. Guarded by him (sun), his middle brother is *Aśnā*– air and the third brother *is Ghṛta-pṛṣṭha*– organic matter. Here I have seen seven sons of the *Viśvapatim*– the chief of the world. (Ṛg.1-164-1)

It has been indicated that guarded by the supreme is the sun in the heaven. His middle brother is air and the third brother is on the earth *Ghṛta-pṛṣṭha*. The seven sons are seven rays of the sun. They feed the creation on the earth through photosynthesis. Accordingly it has been indicated that sun is the main source of energy on the earth. The middle atmosphere is the second centre, which feed the creation through ionospheric processes. His third brother *Ghṛta-pṛṣṭha*, he feed the creation on the earth through the organic matter synthesized through photosynthesis. The whole play on the earth is due to the conversion of light energy in to the chemical energy through photosynthesis. Hence the seven rays have been termed as seven sons of the *Viśvapatim*-The chief of the world. In this way the Vedic seers have drawn the attention towards the three main centres of the creation, sky (sun), air-atmosphere and plants on the earth.

स॒प्त यु॑ञ्जन्ति॒ रथ॒मेक॑चक्र॒मेको॒ अश्वो॑ वहति स॒प्तना॑मा।
त्रि॒नाभि॑ च॒क्रम॒जर॑मन॒र्वं यत्रे॒मा विश्वा॒ भुव॒नाधि॑ त॒स्थुः।।२।।

Seven harness (yuñja) a one wheeled chariot; one horse, having seven names, draw (vaha) it; of three naves (is) the wheel unwasting, unassiled where on stand all these existence. (Ṛg. 1-164-2)

The seven harness of one wheeled chariot are seven planets of the solar system. The solar system has been termed as one wheeled chariot. One horse having seven names is sun, which has seven visible rays and is responsible for the working of the solar system. The three naves are the sun in the sky. The sun is the source of energy and feed the creation through its nuclear reactions at its surface. The second nave of the creation is the middle atmosphere, where the ionosphere feed the creation through ionization. The third nave is on the earth, where plants convert the light energy in to chemical energy and nourish the living beings at its surface through their autotrophic nature. On these three naves (centres) the creation has its existence these three centres are working without rest.

इ॒मं रथ॒मधि॒ ये स॒प्त त॒स्थुः स॒प्तच॑क्रं स॒प्त व॑ह॒न्त्यश्वा॑ः।
स॒प्त स्वसा॑रो अ॒भि सं न॑वन्ते॒ यत्र॒ गवां॒ निहि॑ता स॒प्त नाम॑।।३।।

The seven they stand on this chariot- seven horses draw it, seven wheeled; seven sisters utter songs of praise together, in whom the names of the seven cows are treasured. (Ṛg. 1-164-3)

The solar system has been termed as a chariot, where seven planets of the solar system drive the solar system through their movement around the sun just like horse. The planets are rotating at their axis, due to this they have magnetic field and the magnetosphere around them. It is responsible for the movement of the solar system. Hence they have been termed as seven wheels of the chariot. The seven sisters are seven visible rays, they feed the living beings like a cow on the earth, through the photo-synthesis. Due to this the world of living beings came in to the existence through evolution. Among them the human beings are highly evolved. The human beings utter praise songs which has seven syllables.

During the assembly of the intellectuals in a very respectable manner the questions have been raised regarding the creation system that how it is sustained?

को द॑दर्श प्र॒थमं जाय॑मानमस्थ॒न्वन्तं॒ यद॑न॒स्था बिभ॑र्ति।
भू॒म्या अ॒सु॒रसृ॑गा॒त्मा क्व॑ स्वि॒त्को वि॒द्वांस॒मुप॑ गा॒त्प्रष्टु॑मे॒तत्।।४।।

Who hath beheld him as he sprang to being, seen how the boneless One supports the bony?

Where is the blood of earth, the life, the spirit? Who may approach the man who knows, to ask it? (Ṛg. 1-164-4)

The questions have been raised regarding the creation system that how it is sustained? Who has seen the process of creation? How the boneless one supports the bony? Where is the blood of earth, the life, the spirit?

पाक॑ः पृच्छामि॒ म॒नसावि॑जानन्दे॒वाना॑मे॒ना निहि॑ता प॒दानि॑।
व॒त्से ब॒ष्कयेऽधि॑ स॒प्त तन्तू॒न्वि त॑त्निरे क॒वय॒ ओत॒वा उ॑।।५।।

Unripe in mind, in spirit undiscerning, I ask of these the God's established places; For up above the yearling Calf the sages, to form a web, their own seven threads have woven. (Ṛg. 1-164-5)

The other question about the creation that where is the station of the natural forces under which the yearly calf (the living creatures on the earth) weave a web through its own seven threads.

It means the question is about the ecosystem. During the yearly course of the sun on the surface of the earth, the food chains and food webs have been formed due to the photosynthesis by the plants in the presence of light. The seven rays of the visible light have been termed as seven threads, which are responsible for the formation of the food chains and the food web in the nature.

अचिकित्वाञ्चिकितुषश्चिदत्र कवीन्पृच्छामि विद्मने न विद्वान्।
वि यस्तस्तम्भ षळिमा रजांस्यजस्य रूपे किमपि स्विदेकम्।।६।।

I ask unknowing, those who know, the sages, as one all ignorant for sake of knowledge. What was that One who in the Unborn's image hath established and fixed firm these world's six regions. (Ṛg. 1-164-6)

The question has been raised regarding the one, which is in the image of the unborn fundamental energy, which has firmly established the six regions of the world. It means the infinite nature, under which the creation is working as a system.

इह ब्रवीतु य ईमङ्ग वेदास्य वामस्य निहितं पदं वेः।
शीर्ष्णः क्षीरं दुह्रते गावो अस्य वव्रिं वसाना उदकं पदापुः।।७।।

Let him who knoweth presently declare it, this lovely Bird's securely founded station.

Forth from his head the Cows draw milk, wearing his vesture, with their foot they drunk the water.

(Let him who truly knows (here) tell the set down track of this pleasant bird; the kine extract milk from his head; clothing themselves in a wrap, they drunk water with the foot.) (Ṛg.1-164-7)

The pleasant bird is sun, from where the kine extract milk from his head. It indicates about the visible solar rays (VIBGYOR). They are coming on the earth's surface from the head of the sun. These rays are trapped by the plants for the photosynthesis. They acts as milk-food (*Kṣīra*), accordingly the sun rays feed the living-beings through plants, hence the visible rays of the sun have been compared with the milk and plants as kine. The absorption of water by the green plants has been indicated through the drinking of water with the foot, the foot represent root system.

The questions which have been raised in the stanza from 4 to 7, their answers have been given systematically.

को द॑दर्श प्र॒थमं जाय॑मानमस्थ॒न्वन्तं॒ यद॑न॒स्था बिभ॑र्ति।
भूम्या॒ असु॒रसृ॑गा॒त्मा क्व॑ स्वि॒त्को वि॒द्वांस॒मुप॑ गा॒त्प्रष्टु॑मे॒तत्।।४।।

Who hath beheld him as he sprang to being, seen how the boneless One supports the bony?

Where is the blood of earth, the life, the spirit? Who may approach the man who knows, to ask it? (Ṛg. 1-164-4)

The questions have been raised regarding the creation system that how it is sustained? Who has seen the process of creation? How the boneless one supports the bony? Where is the blood of earth, the life, the spirit?

1. Who has seen him as he sprang to being?

Its answer has been given through the metaphor of the mother, father and calf.

The supreme fundamental energy has been designated as father of the creation. The micro nature, which came in to the existence in the early stages with the formation of the fundamental particles, it has been termed as Mother.

मा॒ता पि॒तर॑मृ॒त आ ब॑भाज धी॒त्यग्रे॒ मन॑सा॒ सं हि ज॒ग्मे।
सा बी॑भ॒त्सुर्गर्भ॑रसा॒ निवि॑द्धा॒ नम॑स्वन्त॒ इदु॑पवा॒कमी॑युः।।८।।

The Mother gave the Sire his share of Order: with thought, at first she wedded him in spirit.

She the coy Dame, was filled with dew prolific: with adoration men approached to praise her. (Ṛg. 1-164-8)

During the pre-cosmic conditions the mother-nature was in dormant condition along with the Supreme-fundamental energy. *She wedded him in spirit and the coy Dame, was filled with dew prolific.* It means the mother-nature became active with the formation of the charged particles, which is the first seed of creation and the developing creation has been termed as calf.

यु॒क्ता मा॒तासी॑द्धु॒रि दक्षि॑णाया॒ अति॑ष्ठ॒द्गर्भो॑ वृज॒नीष्व॒न्तः।
अमी॑मेद्व॒त्सो अनु॒ गाम॑पश्यद्विश्वरू॒प्यं॑ त्रि॒षु योज॑नेषु।।९।।

Yoked was the Mother to the boon Cow's car-pole: in the dank rows of cloud the Infant rested.

Then the Calf lowed, and looked upon the Mother, the Cow who wears all shapes in three directions. (Ṛg. 1-164-9)

The formation of the ions in the region of ionosphere has been termed as cow's car-pole. The ions from the ionosphere feed the creation like a cow. The cloudy atmosphere of the ions in the upper atmosphere has been termed as *infant rested*. When they came on the lower surface, they get converted in to the atoms and the molecules. It has been termed as "*the calf lowed* and looked upon the Mother– nature. It means in this manner the infinite-nature, who has all different shapes in the three regions sky, Atmosphere and the earth have came in to the existence.

ति॒स्रो मा॒तृस्त्रीन्पि॒तृन्बिभ्र॒देक॑ ऊ॒र्ध्वस्त॑स्थौ॒ नेमव॑ ग्लापयन्ति।
म॒न्त्रय॑न्ते दि॒वो अ॒मुष्य॑ पृ॒ष्ठे वि॑श्व॒वि॒दं वा॒चमवि॑श्वमिन्वाम्।।१०।।

Bearing three Mothers and three Fathers single he stood erect: they never make him weary.

There on the pitch of heaven they speak together in speech all knowing but not all- impelling. (Ṛg. 1-164-10)

The three regions, the sun in the sky, middle atmosphere and earth. Where the activity of the nature is at its peak, these regions have been termed as just like three Mother and three Father. Because the fundamental particles, ions, atom and the molecules have been synthesized in the presence of the fundamental energy but the fundamental energy remains unaffected and the seers talk on the earth that we know all this but it is not sufficient.

2. How the boneless One supports the bony?

The answer of this question has been given that the *boneless nature* supports the creation through *the Saṁvatsara–Kāla*– year, months and the seasons, they occur during the year. It is the wheel of order.

Earth

द्वादशारं नहि तज्जराय वर्वर्ति चक्रं परि द्यामृतस्य।
आ पुत्रा अग्ने मिथुनासो अत्र सप्त शतानि विंशतिश्च तस्थुः।।११।।

Formed with twelve spokes, by length of time, un-weakened, rolls round the heaven this wheel of during order.

Herein established, joined in pairs together, seven hundred Sons and twenty stand, O Agni. (Ṛg. 1-164-11)

The Saṁvatsara–Kāla– year, it has twelve months with seven hundred and twenty days and nights (three hundred and sixty days) This *Kāla–* Time is rolling round the heaven. The time is related with the rotation of the earth around the sun and movement of the earth at its axis. It is the wheel of order.

Sun and Moon

पञ्चपादं पितरं द्वादशाकृतिं दिव आहुः परे अर्धे पुरीषिणम्।
अथेमे अन्य उपरे विचक्षणं सप्तचक्रे षळर आहुरर्पितम्।।१२।।

They call him in the farther half of heaven the Sire five–footed, of twelve forms, wealthy in watery store.

These others say that he, God with farseeing eyes, is mounted on the lower seven wheeled, six-spoked car. (Ṛg.1-164-12

The seers have expressed that about the wheel of order there are other views are also there. The twelve months of seven hundred and twenty days and night having five seasons (when rainy season of four month) with watery store. It means the time related with the moon has been indicated. (Ṛg.1-164-12a)

These others say that the wheel of order is having six seasons with the seven rays of the sun. It means the time related with the movement of the sun at its axis has been indicated. The six seasons have two month each. (Ṛg. 1-164-12b)

पञ्चारे चक्रे परिवर्तमाने तस्मिन्ना तस्थुर्भुवनानि विश्वा।
तस्य नाक्षस्तप्यते भूरिभारः सनादेव न शीर्यते सनाभिः।।१३।।

Upon this five-spoked wheel revolving ever all living creatures rest and are dependent.

Its axle, heavy-laden, is not heated: the nave from ancient time remains unbroken. (Ṛg. 1-164-13)

The five seasons, the year will have five seasons when the rainy season is considered as of four month and rest four season of two month each. This wheel of the year is related with the moon is eternal on which all creatures are dependent.

सने॑मि च॒क्रम॒जरं॒ वि वा॑वृत उत्ता॒नायां॒ दश॑ यु॒क्ता व॑हन्ति।
सूर्य॑स्य॒ चक्षू॒ रज॑सै॒त्यावृ॑तं॒ तस्मि॒न्नार्पि॑ता॒ भुव॑नानि॒ विश्वा॑।।१४।।

The wheel revolves, unwasting, with its felly: ten draw it, yoked to the far-stretching car-pole.

The Sun's eye moves encompassed by the region: on him dependent rest all living creatures. (Ṛg. 1-164-14)

It has been indicated here that the wheel of year related with the sun is without aging. It has spread in all the ten directions, along with it sun's eye move encompassed by the region, on him all the creatures have been dependent.

सा॒कं॒ज्ञानां॑ स॒प्तथ॑माहुरेक॒जं षळिद्य॒मा ऋष॑यो दे॒वजा इति॑।
तेषा॑-मि॒ष्टानि॒ विहि॑तानि धाम॒शः स्था॒त्रे रे॑जन्ते॒ विकृ॑तानि रूप॒शः।।१५।।

Of the co-born they call the seventh single-born; the six twin pairs are called Ṛṣis, Children of Gods.

Their good gifts sought of men are ranged in order due and various in their form move for the Lord who guides. (Ṛg. 1-164-15)

It has been indicated here about the intercalary month and an extra single season as seventh season of one month. When the year is considered as of three hundred and sixty days.

Actually the year has three hundred and sixty five days, the remaining five days in due course of time has been shown as extra intercalary month with an extra season of one month.

The *Saṁvatsara Kāla*- year and the seasons are related with the movement of the earth, sun and the moon. It has been indicated that life on the earth is influenced by these at a length.

Through the yearly course of the sun and the seasons how the nature exhibits its functions, it has been indicated in the stanza 16-17, through the metaphor of mother-nature as cow and her calf as the symbol of the creation

3. Nature as Cow

स्त्रिय॑ः स॒तीस्ताँ उ॑ मे पु॒ंस आ॑हु॒ः पश्य॑दक्ष॒ण्वान्न वि चे॑तद॒न्धः।
क॒विर्यः पु॒त्रः स ई॒मा चि॑केत॒ यस्ता वि॑जा॒नात्स पि॒तुष्पि॒तास॑त्।।१६।।

They told me these were males though truly females: he who hath eyes sees this, the blind discerns not.

The son who is a sage hath comprehended: who knows this rightly is his father's father. (Ṛg. 1-164-16)

It has been indicated that the mother- nature feed the creatures like a mother, but even though some consider it male. The seer who knows it in its real sense is his father's father in knowledge. The infinite-nature is the image of unborn fundamental energy.

अ॒वः परे॑ण प॒र ए॒नाव॑रेण प॒दा व॒त्सं बिभ्र॑ती॒ गौरुद॑स्थात्।
सा क॒द्रीची॒ कं स्वि॒दर्धं॒ परा॑गा॒त्क्व॑ स्वित्सूते न॒हि यू॒थे अ॒न्तः।।१७।।

Beneath the upper realm, above this lower, bearing her calf at foot the Cow hath risen.

Witherward to what place hath she departed? Where calves she? Not amid this herd of cattle. (Ṛg.1-164-17)

The Mother-nature has been compared with the cow due to the nourishing capacity of the nature. It has been indicated that the nature, which feed the calf- creation on the earth from the upper realm with visible light. After the sunset, where it has its rise? Simultaneously a question has been raised that the light, which was there, where it has departed to have calf (creatures)? It means the phenomena of day and night has been indicated. Along with this through the question, the movement of the earth at its axis has been indicated through the question.

4. Where is the blood of earth, the life, the spirit?

अ॒वः परे॑ण पि॒तरं॒ यो अ॑स्यानु॒वेद॑ प॒र ए॒नाव॑रेण।

क॒वी॒यमा॑न॒ः क इ॒ह प्र वो॑च॒द्देवं मन॒ः कु॒तो अधि॒ प्रजा॑तम्॥१८॥

Who, that the father of this Calf discerneth beneath the upper realm, above the lower,

Showing himself a sage, may here declare it? Whence hath the God like spirit had its rising? (Ṛg.1-164-18)

The creation has been termed as calf. The father of the creation is supreme fundamental energy. He is present every where, but who will explain that when he has sprung the mind-spirit? It means the question is about the life energy.

ये अ॒र्वाञ्च॒स्ताँ उ॒ परा॑च आहु॒र्ये परा॑ञ्च॒स्ताँ उ॑ अ॒र्वाच॑ आहुः।
इन्द्र॑श्च॒ या च॒क्रथुः॑ सोम॒ तानि॑ धु॒रा न यु॒क्ता रज॑सो वहन्ति॥१९॥

Those that come hitherward they call departing, those that depart they call directed hither.

And what so ye have made, Indra and Soma, steeds bear as 'twere yoked to the region's car-pole. (Ṛg. 1-164-19)

Here in a symbolic fashion they have indicated about the Bio geo chemical cycle of the nature through the ancient and recent. For which *Indra* and *Soma* have made the path, it means electromagnetic energy. It is also the bond energy. The electro magnetic energy decides the path through the synthesis and degradation of the matter in the nature. It has been expressed as recent and ancient.

The whole earth is an ecosystem. The ecosystem, maintain its equilibrium in between its different components through the through Bio-geo chemical cycle on the earth. The bio-geo chemical cycle has been termed as Blood of the earth, the path of the cycle is set by the Soma and Indra– Elecrtomagnetic energy.

Life and spirit

द्वा सु॑प॒र्णा स॒युजा॒ सखा॑या समा॒नं वृ॒क्षं परि॑ षस्वजाते।
तयो॑र॒न्यः पिप्प॑लं स्वा॒द्वत्त्यन॑श्नन्न॒न्यो अ॒भि चा॑कशीति॥२०॥

Two Birds with fair wings, Knit with bonds of friendship, in the same sheltering tree have found to being a refuge. One of the twain eats the sweet tree fruitage; the other eating not regardeth only. (Ṛg. 1-164-20)

On this stanza *Sāyaṇa* says that the two birds are the vital and the supreme spirit, dwelling in one body. The vital spirit enjoy the fruit or rewards of actions, while the supreme spirit is merely a spectator.

Through the example of two birds on the same tree, out of which one enjoy the sweet fruit and other one is only a spectator. Here the Vedic seers have indicated about the existence of the DNA (Deoxy Ribose Nucleic Acid) in the body. The DNA regulates the life cycle through the hereditary characters and protein synthesis. The same has been termed as *Jīvātmā– bio-soul*, and the other one is life energy, which is synonym to the fundamental energy. The same is the supreme spirit in the body as spectator, commonly known as soul. Accordingly the soul in the body and the fundamental energy (*God*) are one and the same

यत्रा॑ सुप॒र्णा अ॒मृत॑स्य भा॒गमनि॑मेषं वि॒दथा॑भि॒स्वर॑न्ति।
इ॒नो विश्व॑स्य॒ भुव॑नस्य गो॒पाः स मा॒ धीरः॒ पाक॒मत्रा वि॑वेश।।२१।।

Where those fine Birds hymn ceaselessly their portion of life eternal, and the sacred synods, There is the Universe's mighty Keeper, he, wise, hath entered into me the simple. (Ṛg. 1-164-21)

On the earth, the creatures enjoy the fruit of eternal life. The two birds (life energy and biosoul) are living in association with each other. The lord of the creatures has entered in to me. It has been indicated that the life energy and the supreme fundamental energy, they are one and the same, which is present in the body as life energy. It has been indicated in a anthropomorphic manner.

यस्मि॑न्वृ॒क्षे म॒ध्वदः॑ सुप॒र्णा नि॑वि॒शन्ते॒ सुव॑ते॒ चाधि॒ विश्वे॑।
तस्येदा॑हु॒ः पिप्प॑लं स्वा॒द्वग्रे॒ तन्नोन्न॑श॒द्यः पि॒तरं॒ न वेद॑।।२२।।

The tree where on the fine Birds eat the sweetness, where they all rest and procreate their offspring- Upon its top they say the fig. is luscious: none gaineth it who knoweth not the father. (Ṛg. 1-164-22)

It has been indicated that in the creation the beautiful creatures eat the sweet fruits of life. They enjoy the life and produces off-springs. At the peak of their life they say that life is beautiful. But he, who knows not his generator father, for him all is useless.

पाक॑ः पृच्छामि॒ मन॒सावि॑जानन्दे॒वाना॑मे॒ना निहि॑ता प॒दानि॑।
व॒त्से ब॒ष्कयेऽधि॑ स॒प्त तन्तू॒न्वि त॑त्निरे क॒वय॒ ओत॒वा उ॑।।५।।

Unripe in mind, in spirit undiscerning, I ask of these the God's established places; For up above the yearling Calf the sages, to form a web, their own seven threads have woven. (Ṛg. 1-164-5)

I ask of these the God's established places; It has been asked that during the yearly course of the sun. The sages-living creatures weave a web from their own seven threads.

The seven rays of the visible light has been termed as seven threads. They are responsible for the formation of the food chains and the food webs in the nature through photo synthesis.

1. The God's established places?

The question is regarding the secret places of the natural forces through which the creation has its existence.

a. Electron theory

यद्गा॑य॒त्रे अधि॑ गाय॒त्रमाहि॑तं॒ त्रैष्टु॑भाद्वा॒ त्रैष्टु॑भं नि॒रत॑क्षत।
यद्वा॒ जग॒ज्जग॒त्याहि॑तं प॒दं य इत्तद्वि॒दुस्ते अ॑मृत॒त्वमा॑नशुः।।२३।।

How on the Gāyatrī the Gāyatrī was based, how from the Triṣṭup they fashioned the Triṣṭup forth, How on the Jagatī, they who know this have won themselves immortal life. (Ṛg. 1-164-23)

On this stanza Sāyaṇa says: They who know the station of *Agni* upon the earth, *Vāyu* that was fabricated from the firmament and that the station of the sun, which is placed in the heaven. It means he who knows the process of the creation, he obtain immortality.

गा॒य॒त्रेण॒ प्रति॑ मिमीते अ॒र्कम॒र्केण॒ साम॒ त्रैष्टु॑भेन वा॒कम्।
वा॒केन॑ वा॒कं द्वि॒पदा॒ चतु॑ष्पदा॒क्षरे॑ण मिमते स॒प्त वाणी॑ः।।२४।।

With Gāyatrī he measures out the praise-song, Sāma with praise-song, triplet with the Triṣṭup. The triplet with the two or four-foot measur and with the syllable they from seven metres. (Ṛg.1-164-24)

In this stanza in a symbolic fashion the seer has indicated about the formation of the atoms from the *Gāyatrī* (three fundamental particles). It has been indicated that due to the movements of the electrons, energy gets generated, which has been expressed as *Sāma,* and due to the *Sāma,* the triplet (three) get bind in to the *Trişṭup* (atom), accordingly from the triplet two or four foot and accordingly seven metres can be measured.

It has been indicated in a symbolic manner here that how the atoms, molecules and the matter can be formed in the nature.

जग॑ता॒ सिन्धुं॑ दि॒व्य॑स्तभायद्रथन्त॒रे सूर्यं॒ पर्य॑पश्यत्।
गा॒य॒त्रस्य॑ स॒मिध॑स्ति॒स्र आ॑हु॒स्ततो॑ म॒ह्ना प्र रि॑रिचे महि॒त्वा।।

With Jagatī the flood in heaven he established and saw the sun in the Rathantara Sāman. Gāyatrī hath, they say, three brands for kindling: hence it excels in majesty and vigour. (Ṛg. 1-164-25)

The Jagatī is the place in the atmospheric ocean, where the high energetic solar winds are trapped by the earth's magnetosphere. The three fundamental particles- electron, proton and neutron have been converted in to the ions. Hence it excels in majesty and vigour. (*Gāyatrī's* three bands are three fundamental particles).

b. Nature as milk Cow

The ionospheric processes going on in the region of magnetosphere feed the creation, the same has been termed as milk Cow, how she nourish the creation as calf has been indicated metaphorically.

उप॑ ह्वये सु॒दुघां॑ धे॒नुमे॒तां सु॒हस्तो॑ गो॒धुगु॒त दो॑हदेनाम्।
श्रेष्ठं॑ स॒वं स॑वि॒ता सा॑विषन्नो॒ऽभी॑द्धो घ॒र्मस्तदु॒ षु प्र वो॑चम्।।२६।।

I invocate the milch-cow good for milking so that the milker, deft of the hand, may drain her. May Savitā give goodliest stimulation, the caldron is made hot; I will proclaim it. (Ṛg. 1-164-26)

Here it has been indicated that those who know the importance of the upper atmosphere they can extract much more from the nature for their welfare.

हि॒ङ्‌कृ॒ण्व॒ती व॑सु॒पत्नी॒ वसू॑नां व॒त्समि॒च्छन्ती॒ मन॑सा॒भ्यागा॑त्।
दु॒हाम॒श्विभ्यां॒ पयो॑ अ॒घ्न्येयं सा व॑र्धतां मह॒ते सौभ॑गाय।।२७।।

She, lady of all treasure, is come hither yearning in spirit for her calf and lowing. May this cow yield her milk for both the Aśvins, and may she prosper to our high advantage. (Ṛg. 1-164-27)

The nature in the mid atmosphere has been designated as treasure. She-nature came down for her calf (creation). It has been proclaimed that the nature may yield her milk for both the *Aswins*, it means living and non-living, both are important for the prosperity of nature and for us. It has been indicated by *may she prosper to our high advantage.*

गौर॑मीमे॒दनु॑ व॒त्सं मि॒षन्तं॑ मू॒र्धानं॒ हिङ्ङ॑कृणो॒न्मात॒वा उ॑।
सृक्वा॑णं घ॒र्मम॒भि वा॑वशा॒ना मिमा॑ति मा॒युं पय॑ते॒ पयो॑भिः।।२८।।

The cow hath lowed after her blinking youngling; she licks his forehead as she lows to from it. His mouth she fondly calls to her warm udder and suckles him with milk while gently lowing. (Ṛg. 1-164-28)

The mother– nature lowed after her calf (creation) and feed the creation like a milk cow.

अ॒यं स शि॑ङ्क्ते॒ येन॒ गौर॒भीवृ॑ता॒ मिमा॑ति मा॒युं ध्व॒सना॒वधि॑ श्रि॒ता।
सा चि॒त्तिभि॒र्नि हि च॒कार॒ मर्त्यं॑ वि॒द्युद्भव॑न्ती॒ प्रति॑ व॒व्रिमौ॑हत।।२९।।

He also snorts, by whom encompassed round the Cow lows as she clings unto the shedder of the rain.

She with her shrilling cries hath humbled mortal man, and, turned to lightening, hath stripped off her covering robe. (Ṛg. 1-164-29)

The mother cow– Nature make noise with thundering and lighting, she come nearer to the calf (creation) through rains and surround the creatures.

c. Mystery of life

The mystery of life on the earth has been explored in the stanza from 30 to 33.

अ॒नच्छ॑ये तु॒रगा॑तु जी॒वमेज॑द्ध्रु॒वं मध्य॒ आ प॒स्त्या॑नाम्।
जी॒वो मृ॒तस्य॑ चरति स्व॒धाभि॒रम॑र्त्यो॒ मर्त्ये॑ना॒ सयो॑निः।।३०।।

That which hath breath and speed and life and motion lies firmly established in the midst of houses. Living by offerings to the Dead he moveth Immortal one, the brother of the mortal. (Ṛg. 1-164-30)

The living creature shows energy transformation, life and motion, in them, he lies in the midst of houses (cell), he is immortal living in the cell body as brother of the mortals.

In this way the presence of life energy has been indicated.

अप॑श्यं गो॒पाम॑निपद्यमान॒मा च॒ परा॑ च प॒थिभि॒श्चर॑न्तम्।
स स॒ध्रीची॒: स विषू॑ची॒र्वसा॑न॒ आ व॑रीवर्ति॒ भुव॑नेष्व॒न्तः।।३१।।

I saw the Herdsman, him who never stumbles approaching by his pathways and departing. He clothes with gathered and diffusive splendour within the worlds continually travels. (Ṛg. 1-164-31)

The life energy has been termed as herdsman– the guardian, he travel continuously among the creatures with different covering and hidden. It means the life energy gets generated at its own and disappear with time at its own, it travel with different physical bodies.

य ईं॑ च॒कार॒ न सो अ॒स्य वे॑द॒ य ईं॑ द॒दर्श॒ हिरु॒गिन्नु तस्मा॑त्।
स मा॒तुर्योना॒ परि॑वीतो अ॒न्तर्ब॑हुप्र॒जा निर्ऋ॑ति॒मा वि॑वेश।।३२।।

He who hath made him doth not comprehend him: from him who saw him surely is he hidden. He yet enveloped in his Mother's bosom, source of much life, hath sunk into destruction. (Ṛg.1-164-32)

Here the presence of Bio-soul (DNA) has been indicated, it has been said that the living being who produce the offspring through reproduction, they are unable to see him and the person who see him he is hidden from him. *Yet he is enveloped in the Mother's bosom, source of life and enter in the sufferings.* It means the bio-soul-DNA is hidden, with the development of the physical body, it face the consequences of life.

d. Protector of life– Ozone layer

द्यौर्मे॑ पि॒ता ज॑नि॒ता नाभि॒रत्र॒ बन्धु॑र्मे मा॒ता पृ॑थि॒वी म॒हीयम्।
उ॒त्ता॒नयो॑श्च॒म्वो॒३॒र्योनि॑र॒न्तरत्रा॑ पि॒ता दु॑हि॒तुर्गर्भ॒माधा॑त्।।३३।।

Dyaus is my Father my begetter: kinship is here. This great earth is my kin and Mother. Between the wide-spread world-halves is the birth-place: the Father laid the Daughter's germ within it. (Ṛg. 1-164-33)

The life on the earth is a puzzle. The truth has been explained through the mouth of the life in an anthropomorphic manner symbolically." *The sun in the sky is my father, who is the cause of life, earth is my mother, who nourish me and my birth place is in between the world halves,* (where ozone layer absorbs the toxic ultra violet rays)". It means the life has its origin after the formation of the Ozone layer in the atmosphere.

अचि॑कित्वाञ्चिकि॒तुष॑श्चि॒दत्र॑ क॒वीन्पृ॑च्छामि वि॒द्मने॒ न वि॒द्वान्।
वि यस्त॒स्तम्भ॒ षळि॒मा रजां॑स्य॒जस्य॑ रू॒पे किमपि॑ स्वि॒देक॑म्।।६।।

I ask unknowing, those who know, the sages, as one all ignorant for sake of knowledge. What was that One who in the Unborn's image hath established and fixed firm these world's six regions. (Ṛg. 1-164-6)

The question has been raised regarding the one, which is in the image of the unborn fundamental energy, which has firmly established the six regions of the world. It means the infinite nature, under which the creation is working as a system.

1. The Yajña- actions and inter-actions

पृ॒च्छामि॑ त्वा॒ प॒रमन्तं॑ पृथि॒व्याः पृ॒च्छामि॒ यत्र॒ भुव॑नस्य॒ नाभिः॑।
पृ॒च्छामि॑ त्वा॒ वृष्णो॒ अश्व॑स्य॒ रेतः॑ पृ॒च्छामि॑ वा॒चः प॑र॒मं व्यो॑म।।३४।

I ask thee of the earth's extremest limit where is the center of the world, I ask thee. I ask thee of the stallion's seed prolific I ask of highest heaven where speech abideth. (Ṛg. 1-164-34)

Here some serious questions about the creation have been asked, their answers have been given through the *yajña- vedi.*

इ॒यं वेदि॒ः परो॒ अन्तः॑ पृथि॒व्या अ॒यं य॒ज्ञो भुव॑नस्य॒ नाभिः॑।
अ॒यं सोमो॒ वृष्णो॒ अश्व॑स्य॒ रेतो॑ ब्र॒ह्मायं वा॒चः प॑र॒मं व्यो॑म।।३५।।

This alter is the earth's extremest limit; this sacrifice of ours is the world's center. The Stallion's seed prolific is the soma; this Brahman highest heaven where speech abideth. (Ṛg. 1-164-35)

The answers have been given through the sacrifice (*Yajña-* actions and interactions) that this sacrifice altar- *yajña-vedi* is earth's extremist limit, it means they are drawing attention towards the fact that the earth has came in to the existence through action and interactions under space-time relationship and it will go to its end through the series of actions and interactions as going on in the sacrifice altar– *Yajña-vedi.*

The answer of the 2nd question has been given that this sacrifice is the world's centre, it means the centre of the creation lies in the series of actions and interactions, through which the creation is sustained and working as a system, it has been also explained in the stanza (Ṛg. 1-164-50).

The *Yajña*-sacrifice means action and interactions, here it has been said that from actions and interactions again actions and interactions get generated, where according to the cosmic law, *Deva*– fundamental particles are the first, with their activity they get reached to the height of matter and the fundamental particles- *Deva*. It means initially the fundamental particles are the first in the series of action and interactions, through their activity they gets converted into the matter and again reached to their original old state of *Deva*– fundamental particle, which indicates about the natural cycles, through which the natural components get synthesized and disintegrated in the reversible direction.

The stallion's seed prolific is Soma– it means the *Soma*– magnetic energy, which is present in all the planets, asteroids, *Nakshatras* and the sun, matter and in the living creatures, they have the internal energy source as well as they are interconnected with the inter planetary magnetic field, hence *Soma*– magnetic energy has been regarded as the seed prolific, which is self generating in these and their position in the universe is also due this energy.

This Brahman highest heaven where speech abideth– It means the Vāc-speech is imperishable and its highest place is in the universe, the place of supreme fundamental energy has been termed as Brahmā's voice.

स॒प्तार्ध॑ग॒र्भा भुव॑नस्य॒ रेतो॒ विष्णो॑स्तिष्ठन्ति प्र॒दिशा॒ विध॑र्मणि।
ते धी॒तिभि॒र्मन॑सा॒ ते विप॒श्चित॑ः परि॒भुव॒ः परि॑ भवन्ति वि॒श्वत॑ः।।३६।।

Seven germs un-ripened yet are heaven's prolific seed: their functions, they maintain by Viṣṇu's ordinance. Endued with wisdom through intelligence and thought they compass us about present on every side. (Ṛg. 1-164-36)

The seven un-ripened seeds, represents the seven planets of the solar system, the life is present only on the earth and other seven planets are without life. Their functions are dependent on the sun, they influence the life and the creatures on the earth through their magnetic field and the infrared rays. Hence it has been said that they compass us about and present on every side. The influence of the seven planets of the solar system on the earth has been indicated.

2. Vāc- Speech-energy

Vāc- speech or sound has been compared with the *Soma*-energy and it is imperishable, its importance in the creation has been explained in the stanza from 37 to 45.

न वि जा॑नामि॒ यदि॑वे॒दमस्मि॑ नि॒ण्यः सन्न॑द्धो॒ मन॑सा चरामि।
य॒दा माग॑न्प्रथम॒जा ऋ॒तस्यादिद्वा॒चो अ॑श्नुवे भा॒गम॒स्याः।।३७।।

What thing I truly am I know not clearly: mysterious fettered in my mind I wander. When the first-born of holy Law approached me, then of this speech I first obtain a portion. (Ṛg. 1-164-37)

The seer was in search of truth, with God's grace he obtains the truth and has realized the importance of Vāc– speech.

अपा॒ङ्प्राङे॑ति स्व॒धया॑ गृभी॒तोऽम॑र्त्यो॒ मर्त्ये॑ना॒ सयो॑निः।
ता शश्व॑न्ता विषू॒चीना॑ वि॒यन्ता॒ न्य१॒॑न्यं चि॒क्युर्न नि चि॑क्युर॒न्यम्।।३८।।

Back forward goes he grasped by strength inherent the Immortal born the brother of the mortal. Ceaseless they move in opposite direction: men mark the one and fail to mark the other. (Ṛg. 1-164-38)

Symbolically it has been indicated that with the birth the bio-soul come with his powers. He is immortal but leave like a brother of the mortal, they move in opposite direction, it means the mortal body under go aging, the people mark the decay of the body but fail to mark the fate of bio-soul-thought energy. It means with the development of the physical body thought energy also develop but with aging the physical body under go decomposition and the men fail to mark the fate of thought energy.

ऋ॒चो अ॒क्षरे॑ पर॒मे व्यो॑म॒न्यस्मि॑न्दे॒वा अधि॒ विश्वे॑ निषे॒दुः।
यस्तन्न वे॒द किमृ॒चा क॑रिष्यति॒ य इत्तद्वि॒दुस्त इ॒मे समा॑सते।।३९।।

Upon what syllable of holy praise-song as twere their highest heaven the Gods repose them– Who knows not this, what will he do with praise-song? But they who know it well sit here assembles. (Ṛg. 1-164-39)

It has been indicated here that the highest heaven is the place of praise songs, where Gods repose them. It means the *Vāc*–speech imperishable and remains in the universe, who knows not this fact, what he will do with chanting the praise songs? The people who knows this they work and sit together in the assembly.

सू॒य॒व॒साद्भग॑वती॒ हि भू॒या अथो॑ व॒यं भग॑वन्तः स्याम।
अ॒द्धि तृण॑मघ्न्ये विश्व॒दानी॒ं पिब॑ शु॒द्धमु॑द॒कमा॒चर॑न्ती।।४०।।

Forunate mayst thou be with goodly pasture and may we also be exceeding wealthy. Feed on the grass O cow at every season and coming hitherward drink limpid water. (Ṛg. 1-164-40)

The *Vāc*- speech has been compared with the cow, who is inviolable, it means the *Vāc*-speech is imperishable. The *Vāc*-speech energy has been prayed that come here and inspire us just like cow, who feed on the grass and drink clean water.

गौ॒रीर्मि॑माय सलि॒लानि॒ तक्ष॒त्येक॑पदी द्वि॒पदी॒ सा चतु॑ष्पदी।
अ॒ष्टाप॑दी॒ नव॑पदी बभू॒वुषी॑ स॒हस्रा॑क्षरा पर॒मे व्यो॑मन्।।४१।।

Forming the water-floods the (Gaurī) buffalo hath lowed one footed or two footed or four footed she, Who hath become eight footed or hath got nine feet the thousand syllabled in the sublimest heaven. (Ṛg.1-164-41)

According to Sāyaṇa, *Gaurī is Vāc*-speech. The *Gaurī* hath lowed– it means with the thundering of water clouds, the sound energy has been termed as one footed, two footed when sounding from the cloud and the sky, four footed, when from the four cardinal points; eight footed when from four cardinal points and four from intermediate points, nine footed when from these points and zenith and so on as the voice of heaven.

तस्या॑: समु॒द्रा अधि॒ वि क्ष॑रन्ति॒ तेन॑ जीवन्ति प्र॒दिश॒श्चत॑स्रः।
तत॑: क्षरत्य॒क्ष॒रं तद्वि॒श्वमुप॑ जीवति।।४२।।

From her descend in streams the seas of water; thereby the world four regions have their being. Thence flows the imperishable flood and thence the universe hath life. (Ṛg. 1-164-42)

It has been indicated that from the universe the *Vāc*-speech energy is flowing like a ocean. Their by the creatures in the four regions get life, than flows the imperishable flood of *Vāc*-speech energy. Accordingly the whole world is inspired with life. It means the living creatures on the earth are influenced by the imperishable *Vāc*-speech energy of the universe.

3. The Soma– Vāc-energy

श॒क॒मयं॑ धू॒ममा॒राद॑पश्यं विषू॒वता॑ प॒र ए॒नाव॑रेण।
उ॒क्षाणं॒ पृश्नि॑मपचन्त वी॒रास्तानि॒ धर्मा॑णि प्रथ॒मान्या॑सन्।।४३।।

I saw from far away the smoke of fuel with spires that rose on high that beneath it. The Mighty men have dressed the spotted bullock. These were the customs in the days aforetime. (Ṛg.1-164-43)

The seer has presented a picture of the early development of the creation, through the smoky atmosphere. The *Soma* has cooked the spotted bull, it means for the creation sacrifice *Soma Vāc*-speech– magnetic energy is the main energy under the cosmic principles. It indicates that Soma– magnetic energy is in the background of the creation.

4. The three events on the earth

त्रय॑: के॒शिन॑ ऋतु॒था वि च॑क्षते संवत्स॒रे व॑पत॒ एक॑ एषाम्।
वि॒श्वमेको॑ अ॒भि च॑ष्टे॒ शची॑भि॒र्ध्राजि॒रेक॑स्य ददृ॒शे न रू॒पम्।।४४।।

Three with long tresses show in ordered season. One of them sheareth when the year is ended. One with his powers the universe regardeth: of one the sweep is seen, but his figure. (Ṛg. 1-164-44)

The three with long tresses, they represent three main events on the earth's surface. *One of them sheareth when the year is ended,* the end of the year symbolically indicates about the end of life of a living, it means when the organism became dead, the decomposers decompose the dead body. One with his powers protects the whole world it means sun, the sun protects the creation from all side.

Of one, the sweep is seen, but his figure is not seen, it represents life energy, which shows motion but his figure is not seen.

च॒त्वारि॒ वाक्परि॑मिता प॒दानि॒ तानि॑ विदुर्ब्रा॑ह्म॒णा ये म॑नी॒षिण॑ः।
गुहा॒ त्रीणि॒ निहि॑ता॒ नेङ्ग॑यन्ति तु॒रीयं॑ वा॒चो म॑नु॒ष्या॑ वदन्ति।।४५।।

Speech hath been measured out in four division the Brāhmaṇas who have understanding know them. Three kept in close concealment cause no motion of speech men speak only the fourth division. (Ṛg. 1-164-45)

It has been indicated here that the speech has four measuring division, the men speak only the fourth, the rest three are concealed. It means men speak only the fourth, the *Vaikharī-vāc*. The three other *Parā, Paśyantī* and *Madhyamā* remain dormant. It also reveals the truth that man is acquainted with only one fourth of the *Vāc*-speech energy and the rest three fourth is in the heaven and inspire him unknowingly.

Let him who knoweth presently declare it, this lovely Bird's securely founded station.

Forth from his head the Cows draw milk, wearing his vesture, with their foot they drunk the water. (Ṛg. 1-164-7)

Conclusion

Lovely Bird's securely founded station

In a symbolic way a question has been raised about the secret stations of the creation. It has been indicated that the creation is working as a system under the natural cycles. These cycles are lovely bird's secret stations. The fundamental energy has established the world's six regions with its different forms.

इन्द्रं॑ मि॒त्रं वरु॑णम॒ग्निमा॑हु॒रथो॑ दि॒व्यः स सु॑प॒र्णो ग॒रुत्मा॑न्।
ए॒कं सद्विप्रा॑ बहु॒धा व॑दन्त्य॒ग्निं य॒मं मा॑त॒रिश्वा॑नमाहुः।।४६।।

They call him Indra, Mitra, Varuṇa, Agni and he is heavenly nobly-

winged Garutmān. To what is one, sages give many a title: they call it Agni, Yama, Mātariśvan. (Ṛg.1-164-46)

It has been indicated that the creation has came in to existence from the supreme fundamental energy through energy transformation. The different natural forces are his different forms. The *Brāhmiṇa* speaks the same fundamental energy with the different names.

a. Karmic: rebirth cycle

कृ॒ष्णं नि॒यानं॒ हर॑यः सुप॒र्णा अ॒पो वसा॑ना॒ दिव॒मुत्प॑तन्ति।
त आव॑वृत्र॒न्त्सद॑नादृ॒तस्यादिद्घृ॒तेन॑ पृथि॒वी व्यु॑द्यते।।४७।।

Dark the descent: the birds are golden coloured; up to the heaven they fly robed in the waters. Again they descend from the seat of Order and all the earth is moistened with their fatness. (Ṛg. 1-164-47)

It has been indicated here that golden coloured bird (bio-soul- thought energy), fly in the heaven, which has been expressed as dark they descent. Again they descend from the heaven under cosmic principle and with birth they come on the earth and fertilize it.

Its explanation can be seen in the (Atharvaveda-IX-10-23).

अ॒पादे॑ति प्रथ॒मा प॒द्वती॑ना॒ं कस्तद् वां॑ मित्रावरु॒णा चि॑केत।
गर्भो॑ भा॒रं भ॑र॒त्या चि॑दस्या ऋ॒तं पिपु॒र्त्यनृ॑तं॒ नि पा॑ति।। २३।।

She that is footless goes first of them (fem.) that have feet : who understood (ā-cit) *that of you, O Mitra and Varuṇa? the embryo brings* (ā-bhṛ) *the burden of her; she (?) fills (?*pṛ) *truth, protects* (ni-pā) *untruth.*

It suggests that the thought energy of a dead person is footless in the universe. It move from the heaven in to the living beings, they have feet and during the duplication of the DNA in the Embryo, it initiates the burden of his deeds- it means the language code, which open on the DNA, it decides the fate of the individual as per his footless thought energy. It has its appearance with the birth.

b. Cycle of the year

द्वादश प्रधयश्चक्रमेकं त्रीणि नभ्यानि क उ तच्चिकेत।
तस्मिन्त्साकं त्रिशता न शङ्कवोऽर्पिताः षष्टिर्न चलाचलासः॥४८॥

Twelve are the fellies and the wheel is single; three are the naves. What man hath understood it? Therein are set together spokes three hundred and sixty which in nowise can be loosened. (Ṛg. 1-164-48)

It has been indicated here that all the phenomena on the earth are going on under the wheel of year. It has twelve months, three hundred and sixty days with having three centres, Sky, Atmosphere and the earth. It indicates about the yearly cycle of the months and season.

यस्ते स्तनः शशयो यो मयोभूर्येन विश्वा पुष्यसि वार्याणि।
यो रत्नधा वसुविद्यः सुदत्रः सरस्वति तमिह धातवे कः॥४९॥

That breast of thine exhaustless spring of pleasure where with thou feedest all things that are choicest, Wealth giver treasure finder free bestower bring that Sarasvatī that we may drain it. (Ṛg. 1-164-49)

The *Vāc*- speech energy has been invoked as *Sarasvatī*, she is the Goddess of wisdom and knowledge, it has been prayed that the *Vāc* speech nourishes the world like a mother, you are the treasure of jewels, give us the wisdom to drain it. The importance of the *Vāc*- speech energy has been indicated.

c. Bio-geo-chemical cycle

यज्ञेन यज्ञमयजन्त देवास्तानि धर्माणि प्रथमान्यासन्।
ते ह नाकं महिमानः सचन्त यत्र पूर्वे साध्याः सन्ति देवाः॥५०॥

By means of sacrifice the Gods accomplished their sacrifice: these were the earliest ordinances. These Mighty ones attained the height of heaven there where the Sādhyas Gods of old are dwelling. (Ṛg.1-164-50)

The *Yajña*-sacrifice means action and interactions. It has been said that from actions and interactions again actions and interactions generates. According to the cosmic law, *Deva*–fundamental particles are the first, with their activity they reach up to the height of matter and again reach to their state of the fundamental particles- *Deva*. It means initially the fundamental particles are the first in the series of action and interactions. Through their activity they synthesize the matter and with degradation again reach to their original old state of *Deva*– fundamental particle. It means the bio-geo-chemical cycle in the nature, through which the natural components under go synthesis and decomposition in the nature.

d. Hydrological Cycle

स॒मा॒नमे॒तदु॑द॒कमुच्चैत्यव॒ चाह॑भिः।
भूमिं॑ प॒र्जन्या॒ जिन्व॑न्ति॒ दिवं॑ जिन्वन्त्य॒ग्नयः॑।।५१।।

Uniform with the passing days this water mounts and falls again. The tempest clouds give life to earth and fires reanimate the heaven. (Ṛg. 1-164-51)

The hydrological cycle has been indicated, which is the source of life on the earth.

दि॒व्यं सु॑प॒र्णं वा॑य॒सं बृ॒हन्त॑म॒पां गर्भं॑ दर्श॒तमोष॑धीनाम्।
अ॒भी॒प॒तो वृ॒ष्टिभिं॑स्त॒र्पयं॑न्तं॒ सर॑स्वन्त॒मवं॑से जोहवीमि।।५२।।

The Bird celestial vast with noble pinion the lovely germ of plants the germ of waters, Him who delighteth us with rain in season Sarasvan I invoke that he may help us. (Ṛg.1-164-52)

The supreme fundamental energy has been termed as Bird celestial. The supreme fundamental energy is present in the plants as life energy and he is the germ of water. He with rain fertilise the earth with seasons. I invoke the *Sarasvan*- the lord of the creation and the controller of the creation for help. It means the supreme fundamental energy has been invoked.

e. The Infinite Supreme lord

Viraj (is) speech, Viraj earth, Viraj atmosphere, Viraj Prajāpati; Viraj became death, the over-king of the perfectibles (sādhyas); in his control are what was, what is to be; let him put in my control what was, what is to be.

In the concluding stanza it has been indicated that in the creation every thing is going on in a cyclic manner. In the

Atharvaveda (IX-9 &10), The *Asya Vāmīya Sūkta* has been cited, where in Atharvaveda (IX-10-24), the image of the supreme fundamental energy has been expressed in the form of *Viraj Vāc*- Speech energy, *Viraj Earth*, *Viraj Universe, Viraj Prajāpati*– the lord of beings and *Viraj* became the Death, it means the creation is a system, where the potentiality of *Vāc*– speech energy is infinite, potentiality of the earth is infinite, potentiality of the Universe is infinite, potentiality of *Prajāpati*– the lord of beings is infinite and accordingly the death on the earth's surface became infinite. The death is the over lord of the materialistic world, in his control are what is and what is to be. Let him put in my control, what was and what is to be. (Atharvaveda IX-10-24)

It reflects the quest of the human mind to control over death and nature.

सं ग॑च्छध्वं॒ सं व॑दध्वं॒ सं वो॒ मनां॑सि जानताम्।
दे॒वा भा॒गं यथा॒ पूर्वे॑ सञ्ज्ञाना॒ना उ॒पास॑ते।।२।।

Assemble, speak together: let your minds be all of one accord,
As ancient Gods unanimous sit down to their appointed share.

(Ṛg. 10-191-2)

स॒मा॒नो म॒न्त्रः समि॑तिः समा॒नी स॑मा॒नं मन॑ः स॒ह चि॒त्तमे॑षाम्।
स॒मा॒नं मन्त्र॑म॒भि म॑न्त्रये वः समा॒नेन॑ वो ह॒विषा॑ जुहोमि।।३।।

The place is common, common the assembly, common the mind, so be their thought united.

A common purpose do I lay before you, and worship with your general oblation. (Ṛg. 10-191-3)

स॒मा॒नी व॒ आकू॑तिः समा॒ना हृद॑यानि वः।
स॒मा॒नम॑स्तु वो॒ मनो॒ यथा॑ व॒ः सुस॒हास॑ति।।४।।

One and the same be your resolve, and be your minds of one accord.

United be the thoughts of all that all may happily agree.

(Ṛg. 10-191-4)

For the peace on the earth, they have prayed for unity and integrity of heart, mind, thought and action of the human-beings as a universal truth.

8. Puruṣa sūkta– The hymn of Man

Introduction

Modern Concept of Energy

The whole universe is filled with energy, there is only energy, at some places energy get condensed in as electrons, protons and neutrons. They bind together to produce atoms, and atoms in turn bound in to the molecules that produce substances. To whom we can touch, feel and call it as mass energy. In Einstein's equation

$E = mc^2$ it means energy and mass can be converted in to each other, where E = Energy, m = Mass and c = Velocity of light.

Our universe is a vast ocean of energy, where energy under goes transformation. It follows the laws of thermodynamics. The law state that energy is unborn and eternal, but energy can be converted from one form to another form with a successive loss of energy at every transfer. The energy can be defined as capacity to do work. The energy at rest is known as potential energy and the energy at work is known as kinetic energy. Within this framework all other forms of energy such as magnetic, electric, gravitational, heat and metabolic energy are working in the universe. The Laws of thermodynamics also state, when there is an increase it must be balanced by a decrease somewhere else. It means from energy point of view whole universe is a single unit we are only a small part of the same.

Creation sacrifice-Yajña

The Vedic yajña is a symbolic expression for the actions and interactions as such whole creation is a *Sṛṣṭi Yajña*, where actions and interactions are going on in series. The Vedic seers have indicated it in the first hymn of the Ṛgveda through the metaphor of *Yajña*. (Ṛg. 1-1-1)

I invoke the Agni- (fundamental energy) who is the priest, Deva (fundamental particles), sacrificer, and rector of the Sṛṣṭi, Yajña, which

is the treasure of jewels.

I invoke fundamental energy. He is the priest as controller of the creation and *sacrificer of yajña*.

He is *the Deva*– fundamental particles of the *yajña*, he is *sacrificer*, it means he add fuel in the creation for *yajña*-actions and interactions. He is *the reciter*– who *chant-sing* the hymns during the *yajña*, it means he is the source of actions in the creation. He is treasure of jewels. It means the fundamental energy is the source of every thing, which is going on and present in the creation.

How the creation has been evolved? It has been indicated in the *Puruṣa sūkta*. The fundamental energy has been imagined metaphorically in the form of a *Puruṣa,* with innumerable head, eyes and feet. He pervades the earth, the world and even above and in ten finger wide space. It indicates that the fundamental energy– *Puruṣa* is present every where.

Laws of Thermodynamics in the Puruṣa-sūkta

The Puruṣa Sūkta is most important hymn of the whole Vedic literature. It symbolically reveals the secret of the creation. In the *Puruṣa sūkta*– fundamental energy has been described as the personal life giving principle, as well as the original source of the creation. From it the evolution of the creation has been traced.

The Laws of Thermodynamics (Ṛg.10-90-1 to 4),

स॒हस्र॑शीर्षा॒ पुरु॑षः सहस्रा॒क्षः स॒हस्र॑पात्।
स भूमिं॑ वि॒श्वतो॑ वृ॒त्वात्य॑तिष्ठद्दशाङ्गु॒लम्।।१।।

A thousand heads hath purusa, a thousand eyes, A thousand feet on every side pervading earth he fills a space ten finger wide. (Ṛg. 10-90-1)

The fundamental energy has been imagined metaphorically in the form of a *Puruṣa,* with innumerable head, eyes and feet. He pervades the earth, the world and even above and in ten finger wide space. It indicates that the fundamental energy– *Puruṣa* is present in the universe every where.

पुरु॑ष ए॒वेदं सर्वं॒ यद्भू॒तं यच्च॒ भव्य॑म्।
उ॒तामृ॑तत्वस्येशा॑नो यदन्ने॑नातिरोह॑ति।।२।।

This Puruṣa is all that yet hath been and that is to be;
The lord of immortality, which waxes greater still by food
(Ṛg. 10-90-2)

It has been indicated that the fundamental energy is eternal but undergo transformation. It increases with transformation, which is its food symbolically. The lord of immortality, it means it remains constant in all state and imperishable.

ए॒तावा॑नस्य महि॒मातो॒ ज्यायाँश्च॒ पूरु॑षः।
पादो॑ऽस्य॒ विश्वा॑ भू॒तानि॑ त्रि॒पाद॑स्या॒मृतं॑ दि॒वि।।३।।

So mighty is his greatness; yea greater than this is Puruṣa. All creatures are one-fourth of him, three-fourths eternal life in heaven. (Ṛg.10-90-3)

Here it has been said that the cosmos is like a vast ocean of fundamental energy. The visible world is only one-fourth part of him and the rest three fourth part of it is in the heaven above the visible world.

त्रि॒पादू॒र्ध्व उदै॒त्पुरु॑ष॒: पादो॑ऽस्ये॒हाभ॑व॒त्पुनः॑।
ततो॒ विष्व॒ङ् व्य॑क्रामत्साशनानश॒ने अ॒भि।।४।।

With three fourths Puruṣa went up: one fourth of him again was here. Thence he strode out to every side over what eats not and what eats. (Ṛg. 10-90-4)

It has been said that the three fourth part of the fundamental energy is invisible in the heaven. Only its one fourth part is under going transformation again and again, which spreads on every side as animate and inanimate creation.

Formation of the Nebula

Under the laws of thermodynamics how the process of the creation has been initiated? It has been indicated through the formation of the nebula in the early stages of the development in a symbolic fashion.

ततो॑ वि॒राड॑जायत वि॒राजो॒ अधि॒ पूरु॑षः।
स जा॒तो अत्य॑रिच्यत प॒श्चाद्भूमि॒मथो॑ पु॒रः।।५।।

From him Virāṭ was born; again Puruṣa from Virāṭ was born.

As soon as he was born he spread eastward and westward o'er the earth. (Ṛg.10-90.5)

From the *Puruṣa, Virāṭ*-infinite universe was born, from that again *Puruṣa* was born. The reciprocal inter-relationship has a deep meaning, which is a indication towards the generation of the magnetic energy due to the spinning of the charged particles and in the astronomical bodies.

Tasmād Virāṭ ajāyata- It means in the pre-cosmic conditions only *Puruṣa*– fundamental energy was there. From him *Viraj* was born, it means infinite universe with the charged particles came in to the existence, which produce the nebula in the earlier stage of the creation.

Virojo adhi Puruṣaḥ- again from the *Viraj, Puruṣa*– fundamental energy was born. It means due to the spinning movement of the charged particles *Puruṣa*– energy was generated in the nebula and the gaseous clouds.

sa jāto aty....- He spread in all the directions. It means due to the spinning movements of the charged particles gaseous clouds have been formed from the nebula. They spread in all the directions. It is an indication towards the modern Big-bang theory.

paścād bhūmim atho puraḥ- after it the earth and *puraḥ*. It means the earth and the planets have came in to the existence after this.

Electron theory

यत्पुरु॑षेण ह॒विषा॑ दे॒वा य॒ज्ञमत॑न्वत।
व॒स॒न्तो॒ऽस्यासी॒दाज्यं॑ ग्री॒ष्म इ॒ध्मः श॒रद्ध॒विः।।१४।।

When God's prepared the sacrifice with Puruṣa as their offering.

Its oil was spring, the holy gift was autumn; summer was the wood. (Ṛg.10-90-6)

Yat Puruṣeṇa haviṣā....- It means with the stimulation from the *Puruṣa*– fundamental energy. The *Deva*– charged particles have performed the sacrifice– series of actions and interactions.

Deva yajñam atanvata- The process of the *Yajña–* actions and interactions was spread over by the *Deva-* fundamental charged particles.

Vasanto asyāsīd ājyam- for the series of actions and interactions, the spring season is like *Ghee–*,

Gṛṣma idhmaḥ....- the summer-hot season act as fuel and autumn-cold season act like as Havi– stimulator. It is an indication about the importance of the temperature pressure gradient. They control the synthesis and disintegration in the nature in a cyclic manner.

Atomic structure

तं य॒ज्ञं ब॒र्हिषि॒ प्रौक्ष॒न् पुरु॑षं जा॒तम॑ग्र॒तः।
तेन॑ दे॒वा अ॑यजन्त सा॒ध्या ऋष॑यश्च॒ ये।।९।।

They balmed as victim on the grass Puruṣa born in earliest time.
With him the Deities and all Sādhyas and Ṛṣis sacrificed. (Ṛg.10-90-7)

Tam yajñam- In this great sacrifice of the creation

barhiṣi praukṣan Puruṣam- The fundamental energy, which has been generated in the earlier stage act as the platform. Accordingly the charged particles have performed the sacrifice. It means formation of the Atom has been indicated. In the atom positively charged proton and neutral neutron form the nucleus and around it negatively charged electrons move in elliptical orbits. Due to the spinning movements of the electrons around the nucleus magnetic energy generates. It has been indicated in a symbolic fashion through the *barhiṣi-* the nucleus platform and *praukṣan* is an expression for the generation of magnetic energy in the atom. It was generated earlier as *Puruṣa-* fundamental energy.

tena devā ayajanta sāadhyā ṛṣayaś ca ye- Then the Devas– fundamental charged particles undergo the series of actions and interactions. From them Sādhyas– matter and the Ṛṣis have been generated, they have acted accordingly. *Sādhyas* is a symbolic expression for the ingredients of the creation and Ṛṣis– is a symbolic expression for the living beings.

Components of the creation

तस्मा॑द्य॒ज्ञात्स॑र्व॒हुत॒ः सम्भृ॑तं पृषदा॒ज्यम्।
प॒शूँस्ताँश्च॑क्रे वाय॒व्या॒नार॒ण्या ग्रा॒म्याश्च॒ ये।।६।।

From that great general sacrifice the dripping fat was gathered up.

He formed the creatures of the air, and animals both wild and tame (Ṛg. 10-90-8)

Tasmād yajñāt sarvahutaḥ saṁbhṛtam- It means from that great sacrifice-actions and interactions. The complex substances like *curd and Ghī* have been synthesized. The *curd* is a symbolic expression for the condensation and gathering of the materialistic substances. The *Ghī* is the symbolic expression for the complex substances of the living beings.

Life cycles of the living beings

Paśūn tāṅ cakre vāyavyān....- Then in the series the animal cycles of the air, forest and the village were born.

It has been indicated symbolically that the life cycles of the creatures of air, forest and village have came in to the existence due to the chain reactions.

तस्मा॑द्य॒ज्ञात् स॑र्व॒हु॒त ऋच॒ः सामा॑नि जज्ञिरे।
छन्दा॑ꣳसि जज्ञि॒रे तस्मा॒द्यजुस्तस्मा॑दजायत।।७।।

From that great general sacrifice Ṛkas, and Sāma hymns were born.

Therefrom were spells and charms produced; the Yajus had its birth from it. (Ṛg.10-90-9)

Tasmād yajñat sarvahuta ṛcaḥ, sāmāni jajñire..- From that great series of actions and interactions. *The Ṛka, Sāma* hymn and the chants, the meter and *Yajuṣ* were born. It means the source of knowledge about the language and *yajus*– sacrificial formulas are due to him.

तस्मा॒दश्वा॑ अजायन्त॒ ये के चो॑भ॒याद॑तः।
गावो॑ ह जज्ञि॒रे तस्मा॒त्तस्मा॑ज्जा॒ता अ॑जा॒वयः।।८।।

From it were horses born, from it all cattle with two rows of teeth:

From it were generated kine, from it the goats and sheep were born. (Ṛg.10-90-10)

Tasmād aśvā ajāyanta, ye ke cha ubhayādataḥ.. From that great sacrifice arose horse and all cattle such as have two rows of teeth.

gāvo ha jajñire tasmāt tasmāj jātā ajāvayaḥ...- From him *gāvo and ajāvayaḥ* were born.

It means all types of higher animals have been evolved from him. In the Vedas five types of animals *Pañca-jana* have been recognised horse, cow, goat, man and plants.

The stress on the *Gāvo and Ajā-vayaḥ* separately is an indication towards the nourishment of the living creatures. The *Géva–* cows, she feed the human beings through milk and *Aja-āvayaḥ,* it is a indication towards unborn plant pigment chlorophyll as protector. It is present in the plant cell as de-novo with cell division. Due to the presence of chlorophyll the plants are primary producers, they feed the consumers. It means *Aja* means unborn and *āvayaḥ* is a derivative of *Avi* (protector of plants- chlorophyll).

It can be confirmed from Atharva-veda (10-8-31)

अवि॒र्वै नाम॑ दे॒वत॒र्तेना॑स्ते॒ परी॑वृता। तस्या॑ रू॒पेणे॒मे वृ॒क्षा हरि॑ता॒ हरि॑तस्रजः॥

The deity *Avi* by name sits enveloper with right; by her form these trees (are) green, green-garlanded. The presence of chlorophyll has been indicated as protector of the plants.

Human society

Tracing the evolution of the creation from the *Puruṣa*–fundamental energy, it has been indicated about the role of the human beings in the society according to the quality and the mental development of the human beings.

यत्पुरु॑षं॒ व्यद॑धुः कति॒धा व्य॑कल्पयन्।
मुखं॒ किम॑स्यासी॒त् किं बा॒हू कि॒मूरू पादा॑ उच्येते।।१०।।

When they divided the Puruṣa how many portions did they make?

What do they call his mouth, his arms? What do they call his thighs and feet? (Ṛg.10-90-11)

Yat Puruṣam vi-adadhuḥ katidhā vi akalpayan? How the *Puruṣa*– fundamental energy has been imagined in the society?

Mukham kim asya? Kiṁ bāhu? What is his mouth, the arms?

Kiṁ urū pādā ucyete? What are his thigh, and feet produced?

ब्रा॒ह्म॒णो॒ऽस्य॒ मुख॑मासीद्बा॒हू रा॑ज॒न्य॒ः कृ॒तः।
ऊ॒रू तद॑स्य॒ यद्वैश्य॑ः प॒द्भ्याᳫं शू॒द्रो अ॑जायत।।११।।

Brahamin was his mouth, of both his arms was the Rajanya made.

His thigh became the Vaisya, from his feet Sudra was produce? (Ṛg.10-90-12)

Brahmaṇo asya mukham āsīd....- *Brāhmiṇa is like his mouth,*

Bāhu rājanyaḥ kṛtaḥ....- *Kṣatriya* became like his arms.

Urū tad asya yad vaiśyaḥ....- *Vaiśya* became like his thigh.

Padbhyām śudro ajāyata....- From his feet *Śudra* are born.

The answer has been given that **Padbhyām śudro ajāyata** – that from his feet *sudra*– the persons are born without knowledge. It indicates that all are initially born as ignorant of knowledge. With the development of the physical body, with their mental ability and quality they act in the society as *Vaiśya,* who support the society through business, they became like thigh of the *Puruṣa.* The warrior class, who protects the society with physical strength, they became like his arms. The intellectuals, they give guidance to the society through knowledge, they became like his mouth.

It is important to note that only the birth of the *Śudra* from the feet has been indicated, otherwise it has been said that *Brāhmiṇa* became like his mouth, *Kṣatriya* became like his arms and *Vaiśya* became like his thigh.

Human body as microcosm

The human body is a microcosm inside a macrocosm. It has been indicated through the reciprocal interrelationship of the human body and the universe.

च॒न्द्रमा॒ मन॑सो जा॒तश्चक्षो॒: सूर्यो॑ अजायत।
श्रोत्रा॑द्वा॒युश्च प्रा॒णश्च॒ मुखा॑द॒ग्निर॑जायत।।१२।।

The Moon was gendered from his mind and from his eye the sun had birth;

Indra and Agni from his mouth were born, and Vāyu from his breath. (Ṛg.10-90-13)

In the human-beings, the mind is like a moon. From the eyes– the sun has born, it means the man has the vision through the eyes to see the sun. The *Indra (Electricity) and Agni*– heat energy, they are born from the mouth of the *Puruṣa*. It means through these the man has live relationship with the universe. In the man breathing is like the breath of the fundamental energy- *Puruṣa*.

नाभ्या॑ आसीद॒न्तरि॑क्षथ्ठं शी॒र्ष्णो द्यौः सम॑वर्त्तत।
प॒द्भ्यां भू॒मि॒र्दिश॒: श्रोत्रा॒त्तथा॑ लो॒काँ२ अ॑कल्पयन्।।१३।।

Forth from his navel came mid air; the sky was fashioned from his head;

Earth from his feet, and from his ear the regions. Thus they formed the world. (Ṛg.10-90-14)

Comparing the universe with the man, it has been said that the mid air is the naval centre of the creation. The air nourishes the creation through the ionospheric processes. The sky has been designated as his head, from where the sun protects the creation from all side. The earth has been compared with his feet, the ear has been compared with the regions, through which man has the sense of direction.

It means the universe has the connection with the human body through the mid air, sky and the earth. The ear give the sense of direction, thus they have indicated the co relation of the human body with the universe through reciprocal interrelationship.

Cosmic Principles

The creation is working as a system under the cosmic principles. These principles have been given symbolically in the last.

स॒प्तास्या॑सन् प॒रि॒धय॒स्त्रिः स॒प्त स॒मिधः॑ कृ॒ताः।
दे॒वा यद्य॒ज्ञं त॑न्वा॒ना अब॑ध्न॒न् पुरु॑षं प॒शुम्।।१५।।

Seven fencing– sticks had he, thrice seven layers have been prepared, When the Gods, offering sacrifice, bound, as their victim, Puruṣa. (Ṛg. 10-90-15)

Here it has been expressed that the process of creation has been initiated, when fundamental particles were bind in a atom. Due to the spinning of the electrons around the nucleus electro-magnetic energy generates in the atom. In this way the fundamental energy (*Puruṣa)* bind inside the atoms, which binds the atoms and accordingly creation came in to the existence. For the functions of the creation seven sticks (seven planets), twenty-one fuel have been prepared. The twenty-one fuel represents twelve months, six seasons, three weather (Hot, cold and the rainy season). Through it the creation is working as a system. It has three centres– sky, atmosphere and the earth as indicated by the three layers. In this way a picture of the creation system has been expressed symbolically.

य॒ज्ञेन॑ य॒ज्ञम॑यजन्त दे॒वास्तानि॒ धर्मा॑णि प्रथ॒मान्या॑सन्।
ते ह॒ नाकं॑ महि॒मानः॑ सचन्त॒ यत्र॒ पूर्वे॑ सा॒ध्याः सन्ति॑ दे॒वाः।।१६।।

Gods sacrificing sacrificed the victim: these were the earliest ordinances. The mighty ones attained height of heaven, there where the Sādhyas Gods of old, are dwelling. (Ṛg. 10-90-16)

The *Yajña*-sacrifice means action and interactions. It has been said that from actions and interactions again actions and interactions generates. According to the cosmic law, *Deva*– fundamental particles are the first, with their activity they reach up to the height of matter and again reach to their state of the fundamental particles– *Deva*. It means initially the fundamental particles are the first in the series of action and interactions.

Through their activity they synthesize the matter and with degradation again reach to their original old state of *Deva–* fundamental particle. It means the bio-geo-chemical cycle in the nature, through which the natural components under go synthesis and decomposition in the nature

The *Puruṣa sūkta* is considered as latest among the hymns of Ṛgveda. It reveals the climax of the Vedic culture.

In the primitive conditions formation of the nebula was there with the interactions of energy and generation of the charged particles. Due to the movements of charged particles, magnetic energy generates. These charged particles with their opposite charges bind together to produce atoms, atoms consists of subatomic units– electron, proton and neutron. The Electrons are extremely light having cloud like density of mass energy with a negative electric charge, protons are much larger in mass than electron and have a positive charge, neutron have a mass energy equal to that of proton and are electrically neutral. Although other types of sub atomic particles have also been identified, but the properties of atoms and their ability to react chemically can be explained on the basis of these three elementary particles. They constitute the base of the nature.

In the atom positively charged protons and neutrons constitute the nucleus, around which vibrating clouds of negatively charged electrons move in elliptical orbits. Due to the vibratory movements and spin of electrons, magnetic energy generates. The magnetic energy with the electrostatic force of nucleus produces electromagnetic energy. It binds the atom of similar nature. The atoms of different elements can produce diatomic molecules, even poly atomic complex molecules and chains of thousand of atoms like RNA and DNA may be produced. They are the products of chemical interactions of the outermost electrons to yield chemical bond or a covalent bond. The two atoms share electrons or ionic bond. When the electrons are transferred from one atom to another atom, the electromagnetic energy is the bond energy. Through the bonds the electromagnetic energy has maintained its continuity in atoms, molecules, substances and the living beings.

It has the credit for the evolution of the spiritualistic way of life after the *Vedic* culture and *Brāhmaṇa* period, when the meaning of *Yajña* was misinterpreted as only ritual. Accordingly *Ṣaḍa-darshan*– the six system of philosophy and the series of the *Upniṣadic* thoughts came in light. They establish the fact that **God and Soul are one.**

9. Origin of Life– A Review

a. Introduction

Life and death are the two phenomena, which are going on alternately with time. Death is certain, because who so ever has taken birth, ultimately he will have to die and life is uncertain, which is a temporary face during the evolutionary development of the matter under space time and environmental conditions, it is like ice berg in the sea water, which have similar composition of H_2O but having different forms. It seems that life is a specific form of movement and energy, which emerge at a certain stage of evolutionary development of matter, which has acquired a specific form of energy transformation in side a closed system.

Energy transformation, growth and reproduction are the fundamental principles of life, which are common from unicellular to multicellular organisms. All the living-beings are consists of cells and have been originated from the pre-existing cells. They maintain their continuity through cell division. Which shows continuity of life principle, which became complex with evolution. With the acceptance of the view that all the life forms have been originated from the pre-existing cells only, it has given the importance to the quest as and when first life has been originated on the earth.

b. Early History

Astronomical evidences indicate that earth came in to the existence probably 4.6 billions years ago as a large cloud of extremely hot incandescent gas. Due to its extreme hot nature, it was believed that any trace of life could not be possible in these conditions. How ever with cooling of the earth's surface, after many thousands of years, life has been originated on the earth.

Geological findings shows that the rock of Canadian precambrian rocks were having blue green algae, and bacteria, black charts of fig tree series in Swaziland, Eastern transversal shows the presence of filamentous structures re-assembling to debris. It has given the clue that the first life may have been originated about 2-3 billion years ago in the sea.

c. Chemical Clues to the Origin of Life

Modern researches have demonstrated the abiotic formation of organic substances in the early pre-biological history of the earth. A.I. Oparin (1922), J.B.S. Haldane (1928) have suggested that the primitive atmosphere must have carbon dioxide, Ammonia, and water-vapour but no oxygen, Haldane claimed that such a mixture, exposed to Ultra Violet rays would give rise to variety of organic compounds. Herold and Miller created a reducing atmosphere in a laboratory, they passed electric discharges through the atmosphere and showed that methane, Ammonia and water can be converted in to the Aminoacids.

Kensei, Kobayashi of Yokohama National University Japan had shown that high energy particles from space could have been converted the gases of the earth's primitive atmosphere in to the molecules of amino acids.

According to Bungen Burg de Jong (1929), when two hydrophilic colloidal solutions carrying opposite charges are mixed, a visvous drops known as coaservates are often produced instead of continuous liquid phase. Oparin (1928) has suggested that these drops contain a number of particles of opposite charges held together by electrostatic attraction, there fore coaservates are the regions of high concentrations of the two oppositely charged particles. A.I.Oparin in 1968 has obtained evidences that the Photosynthetic activity of porphyrin can be promoted, when it is incorporated in the coaservates.

Researches in the field of origin of life have demonstrated the pre-biotic origin of ingredient of life, a gap which still exists between the artificial models and initial living beings that how the life energy is get generated, which has provided the complexity to structural organization and metabolism. Life is a temporary phase during the evolutionary development of matter, which is influenced by many factors, but life energy is unique. Once it has been generated it maintain its continuity through the cell division.

d. The source of Origin of Life

It seems that the life driving force and the seeds of origin of life were in the Primitive Solar nebula. It can be traced with the evolution of the universe and the planetary system.

The whole universe is filled with energy, there is only energy, in some places that energy condensed in to as electron, protons and neutrons, which bind together to produce atoms, and atoms in turn bound in to molecules that produce substances, to whom we can touch, feel and call it as mass energy. In Einstein's equation it is written as $E=mc^2$ means energy and mass are inter-convertible.

Our universe is a vast ocean of energy, where energy under goes transformation, which follow the laws of thermodynamics. Which state that energy is unborn and eternal but energy can be converted from one form to another form with a successive loss of energy at every transfer. The energy can be defined as capacity to do work, the capacity with which it work is called potential energy. The energy at work is known as kinetic energy. Within the frame work of this all other fundamental forms of the energy such as magnetic, electric, gravitational, heat and metabolic energy are working in the universe under the laws of thermodynamics. Behind the scene of universe there is fundamental energy. Laws of Thermodynamics also state that when there is an increase it must be balanced by a decrease somewhere else. It means from energy point of view whole universe is a single unit we are only a small part of the same.

In the beginning of the universe there is fundamental energy. That may be magnetic potential energy, which when came in to motion may have generated the electricity with dissipation of heat energy. Once the heat energy get in operation, it can produce charged particles, electron, proton and neutron. The nature of these particles is as such that particles with the same type of charge repel one another, and oppositely charged particles are strongly attracted. The movement of these particles may produce cloudy masses with a increase in their concentration and condensation, with this high temperature and pressure may have been generated which may be responsible for the formation of atoms and chain of nuclear reactions. In this way our primitive solar nebula may have been formed and the moving cloudy masses may have given the birth to our solar system. The cloudy masses with electron, proton, and neutrons, in the beginning these cloudy masses were extremely, incandescent gas. These incandescent gas clouds settle in the universe according to the distance from the solar nebula as per the decrease in temperature. In accordance with the laws of motion and gravitation, they condensed to form planets. The heat generated by their contraction was sufficient to convert them in to the molten state, but not sufficient to initiate nuclear reaction in their centre.

As we know today that in our solar system, the planets are moving around the sun in an elliptical orbit. The planets are also rotating at their axis, due to the rotation they produce magnetic field and magnetosphere, which protects the planets from the solar wind-the hot ionized plasma with magnetic field. The interplanetary space is field with plasma and having interplanetary magnetic field through the interplanetary magnetic field all the planets are interconnected.

e. Life on the Earth

To have a life on a planet, it seems that suitable temperature and availability of water are most important. If a planet is nearer to sun water would evaporate and if it is farther away, water would freeze, in this respect the distance of the earth from the sun is important for the origin of life, which is neither very far from the sun, nor it is too close. Accordingly, under temperature pressure gradient and planetary movements earth and its atmospheric environmental conditions came in to existence, after a series of action and interactions, with time earth's incandescent cloudy gaseous mass cooled down in to liquid, with condensation of the same, a molten mass was get formed, the molten material then produced the rocky crust. The information, which has reveals the fact that below the rocky crust there is a semi-fluid magma-having two layers, which have formed the mantle. Below it a two layered core is present, the mantle is the seat of the earth quakes and volcanoes. Due to the wrinkling and shifting of underlying semi fluid magma the great crakes and mountains came in to existence. When earth cooled down sufficiently, with passage of time the oceans and lakes came in to existence. The rotation of the earth at its axis has developed an internal energy source, with this earth's magnetic field and magnetosphere came in to existence, which has provided a shield against solar wind. As we know that earth's atmosphere extend up to magnetopause, which acts as boundary between the earth and space. The magnetosphere is formed by the interactions of the solar wind particles-the electrons and protons, which constitute the hot ionized plasma, with sun's magnetic field. As a result of solar wind geomagnetic field interactions, mass momentum and energy are get transferred from solar wind to magnetosphere and complex pattern of several current systems have get generated in different parts of magnetosphere, which have provided electrical power for various magnetospheric processes, which under temperature pressure gradient influences the weather and climates on the earth. It means on the primitive earth suitable geological and atmospheric conditions for origin of life may have been generated due to the magnetospheric processes and chemical reactions under temperature pressure gradient and ultra violet rays.

The water molecules can bring hydrological cycle through evaporation and condensation. The water molecules in the presence of ultra violet rays can be dissociated into H+ & OH. These OH ions with further dissociation can produce oxygen in turn it can combine with molecular oxygen to produce ozone molecules. In this way oxygen rich atmosphere with ozone layer may have came into the existence. It seems that the universe under the influence of temperature pressure and cosmic rays is a big reaction centre in between sun and the earth, the sun is the primary energy source for these atmospheric interactions. The earth has provided the cordial place for aggregation of molecules and substances, where the gravitational force of the earth and its geomagnetism has played a significant role for the evolutionary development of the matter, which has provided the base for the origin of life on the earth.

The evolution and development of matter, which leads to origin of life is mainly depends on time factor, for which universal clock is set in the sun, which is related with the rotation of the sun at its axis. When earth complete its one round around the sun, during that period sun rotates at its axis twelve times, these are its twelve faces which constitute twelve months, through which changes in the temperature- pressure gradient and electron density is there in the universe, which causes the occurrence of seasons, which ultimately influence the development of matter and various chemical reactions on the earth. The planetary movement and rotation of sun and earth at their axis, with a fixed duration have given the concept of time as day-night, months, year and seasons, which is mainly responsible for the changes in temperature- pressure and electron density in the atmosphere, which has triggered off a number of chemical reactions in the region of ionosphere under the influence of cosmic rays, electric discharge and geomagnetic field of the earth. Consequently the different atmospheric layers came into the existence, which has generated the cordial conditions for the origin of life on the earth, the magnetosphere has provided the shield against high energetic solar wind, the ozone layer in the region of the troposphere has provided the shield against the ultra violet rays. These are the preliminary conditions for the origin of life. These conditions may have been generated after millions of years prior to the origin of life after the formation of the solar system and the earth.

It seems that with the formation of solar system prior to the origin of life, the three energy centers may have been developed, The Sun, Universe, and the Earth. Nuclear reactions, conversion of the hydrogen into helium and magnetic storms at sun's surface are the main energy source of the solar system. The interplanetary space of the universe is filled with the hot ionized solar plasma. The interplanetary space is filled with interplanetary magnetic field and is the main centre for magnetospheric processes, which has generated the atmospheric gases, atoms and ions of the molecules. The earth where aggregation of the atoms, molecules and substances is there, under the gravitational and geomagnetic forces, it became the main centre for the evolutionary development of matter, which has produced the basic ingredient for life. The first life has been originated in the deep sea with aggregation of molecules and formation of coaservative drops, consequently life may have been originated in a dual manner with time.

On the one hand viruses may have been synthesized abiotically. As we know that viruses are tiny small obligate parasites, they are intermediate between the living and nonliving. They show properties of living beings only inside a living cell. It means they require fundamental life energy of which they are devoid off, which is present only in living cells. Normally the viruses consists of nucleic acids surrounded by protein coat knows as Capsid, which consist of capsomeres. But there are other types also, which are the members of a group of Myxovirus. They posses an outer membrane known as the envelope, which consist of lipid and protein and surrounds the capsid, Herpes also sometimes has an envelope. There is also a plant virus, potato tuber spindle virus, which consists of only RNA, without any protein coat and is transmissible and infectious.

The various forms of virus, shows evolutionary sequence in the viruses. The viruses with only RNA may acts as base for genetic order during the evolution and origin of life, with the formation of coaservative drops. The coaservative drops contain visvous mass and charged particles showing movements in different directions. They are capable of absorbing substances and energy from the outside solution as an open system do. The oppositely charged particles held together by electrostatic attraction in a closed system of coaservates, it may give a streaming movement in turn it can exhibits the properties of a living cell. As we know that streaming of protoplasm is an important factor, till the cell is showing streaming, it is considered as living and as soon as the streaming movements get arrest, the cell became dead. It means the streaming of visvous protoplasm inside the cell generates the life energy. Once the coaserative drops have acquired the streaming movements inside a closed system, in this condition virus like structure having only

RNA (Ribose nucleic acid) (as potato tuber spindle virus), which may have been synthesized abiotically may infect or enclosed in such coaservates showing streaming, in this way first prokaryotic cell may have been originated on the primitive earth, which has maintained its continuity through multiplication and complexity through mutation and evolution. It is also possible that the coaservates with energy transformation may get synthesise the genetic material at its own, through its various components.

The life energy is a magnetic energy, which has been generated due to the streaming movements of the visvous protoplasm in side a closed system, the life energy basically is the same, which was generated initially in side the Nebula, the same has shown its continuity in atoms, molecules, substances and in the living beings through the formation of the bond energy.

In the primitive conditions formation of the nebula was there with the interactions of energy and generation of the charged particles, due to the movements of charged particles, magnetic energy gets generated. These charged particles with their opposite charges bind together to produce atoms, atoms consists of subatomic units-electron, proton and neutron. Electrons are extremely light having cloud like density of mass energy with a negative electric charge, protons are much larger in mass than electron and have a positive charge, neutron have a mass energy equal to that of proton and are electrically neutral. Although other types of sub atomic particles have also been identified, but the properties of atoms and their ability to react chemically can be explained on the basis of these three elementary particles, which constitute the base of the whole nature.

In a atom positively charged protons and neutrons constitute the nucleus, around which vibrating clouds of negatively charged electrons move in elliptical orbits, due to the vibratory movements and spin of electrons, magnetic energy get generated. The magnetic energy with the electrostatic force of nucleus produces electromagnetic energy, which binds the atoms of similar nature. The atoms of different elements can produce diatomic molecules, even polyatomic complex molecules and chains of thousand of atoms like RNA and DNA may get produced, which are the products of chemical interactions of the outermost electrons to yield chemical bond or a covalent bond, when two atoms share electrons or ionic bond, when electrons are transferred from one atom to another atom, it is the electromagnetic energy, which initiate the formation of bonds. Through these bonds the electromagnetic energy has maintained its continuity in atoms, molecules, substances and living beings. In the same manner it can be generated in closed systems of cellular organisms also through streaming of protoplasm, which has maintained its continuity through replication of cells, which gets complicated with the evolution of complex multicellular organisms. As can be seen in the human beings, they have three centre of electromagnetic energy. The individual cells have their own energy generating systems, which get connected together and constitute a electromagnetic circuit of the body. The heart which circulates the blood in the body is another centre for the generation of electromagnetic energy, which can be measured by electrocardiogram (ECG), the third centre is brain, the Neuro-motor apparatus through brain wave impulses generates electromagnetic energy in the body, which can be measured by electro encephalogram (EEG). Although these electromagnetic centers are different in their origin, but constitute a single unit and are co-ordinated by each other. Respiratory metabolism is its fuel and water is its base.

f. Conclusion

It is a fact that basic unit of life is cell. The life principle is hidden in streaming of protoplasm, which has acquired complexity and specification of cellular environmental conditions. At a first glance it looks that life on the earth is very complicated, because it is influenced by so many factors. But the whole universe is the manifestation of a single fundamental energy, which may be magnetic energy. With its various forms, it is working in the universe. Life on the earth is also its manifestation, where it has been enclosed in a closed system as life energy. It initiates the metabolic reactions with the electrostatic energy, which is commonly known as electromagnetic energy. In living beings till it is bound and gets generated in side a closed system, life is there, with ageing of the cells it gets disappear. Similarly the magnetic energy, which is being generated in the atoms, along with electrostatic energy of nucleus initiates the formation of the molecules and substances. The complex substances are synthesised under temperature-pressure gradient. Which have synthesized the prokaryotic cell in the beginning, which has maintained its continuity through division, once the genetic material has acquired the capacity to synthesize protein, the genetic code and mechanism of protein synthesis became complex and complex through mutation and evolution in the different directions, consequently we have the biodiversity in the nature.

Scientific Index to the Vedic Deities

Aja :-	Unborn, Aja
Ajā :-	goat, goat as metaphor for the Ṛbhu-cell body in creation sacrifice.
Apah :-	Water
Apām napāt :-	Son's of water- steam
Apsara :-	Chemical reaction, which are going on in a cyclic manner.
Aditi :-	Infinite nature, micro nature(The name cow is used for nature due to its nourishing capacity.)
Arya:-	Well cultured
Aśvin :-	Morning and evening, they represents a pair, union of two, they are twin sons of Vivasvat- nucleotide pair, represents rising and setting of sun .
Aśva:-	Horse:- a form of rapidly moving energy.
Aśvattha :-	Ficus religiosa, pipal.
Audumbara :-	Ficus glumerata- fig.
Aryaman :-	A ray of sun.,long red wave length of light
Āditya :-	Twelve Āditya (twelve months)
Agni :-	Fire, energy.
Avi:-	Plant protector– Chlorophyll.
Bhag :-	Aṁśa, a portion, pigment.
Bhṛgu :-	Shining, chlorophyll.
Camasam :-	Chalice,cup-cell,
Parṇa Maṇi :-	Chlorophyll
Dakṣa :-	Condensed form of energy, which has produced nebula
Dadhikras:-	Life energy
Dadhikrāvan:-	Dwelling place of life energy-human body
Dhenu :-	Cow, metaphor for nourishment as milk food
Daśagva:-	Ten, ten rays
Deva :-	Fundamental particles, God

Devatā :-	Natural forces
Dharma :-	Work, duty, Cosmic principle.
Dūrvā :-	Grass
Eagle :-	Sun rays
Ghṛt :-	Clarified butter, Condensed form of energy
Ghṛta-pṛṣṭha :-	Condensed energy in organic matter
Gandharva :-	Water nymph, protoplasm
Gladdening Drop:-	Life energy
Garutmāna, Suparṇa:-	Brilliant luster of sun rays (sun bird)
Gāyatrī :-	Three bands of fundamental particles. (electron, proton, neutron, energy)
Havi :-	Stimulator,
Indra	Electricity,-two steeds-two charges,+ive&-ive
Iḍā-Ilā :-	Nourishment
Kutsa :-	Sun spots.
Mārtaṇḍa :-	Earth, Āditya
Maruts :-	Storm,thunder, water-clouds.
Mātariśvan :-	CO_2 (carbon di oxide) (crippled cow)
Mitra :-	Light, Friend
Mother :-	Symbol of progeny and nourishment.
Nave :-	Centre
Navagva :-	Nine, The nine doors of the human body
Nigrodh :-	Ficus bengalensis- banyan.
Nil-lohit :-	Blue and red rays of sun ,
Narāśaṁsa :-	A particular ray of sun, short blue wave length of light
Pūṣan :-	Nourishment, solar rays.
Piśaṅga :-	Toxic rays
Parjanya :-	Rain clouds, due to the nourishing capacity of rains, they have been called as cow and the rain water as milk.
Prajāpati :-	Lord of beings (fundamental energy)
Puruṣa :-	Symbolic imagination of fundamental, energy

Pañca Jana :- Five types of living beings
Pegs:- Cycles
Piśāca :- Rakṣasas– flesh eater microbes
Parṇa-maṇi :- Chlorophyil.
Pavamāna :- O_2 (Oxygen)
Purohita :- Priest
Ṛta- Cosmic principle
Sūrya :- Sun
Sarasvatī :- Vāk, speech, a river
Samidhā :- Fuel
Sādhya :- Material
Savitā :- Stimulator
Soma :- Magnetic energy, forces and formation of bond energy, drinking of soma :- association of magnetic energy with others, such as :- Indra & soma electromagnetic energy.
Śinīvālī :- Duplicating DNA, Which initiate language code in DNA.
Svarbhānu :- Eclipse of sun– Rāhu.
Varuṇa Soma :- The magnetic energy of the atoms, molecules and substances
Rudra soma :- Magnetic energy, which bind the nuclear particle in atoms of gaseous air.
Rudra Agni :- Energy in the gaseous air
Seven Āditya :- Seven sons of Aditi– seven planets.
Savitā :- Stimulator
Somagopa :- Guardian of soma, soma is also a name of a plant as well as moon due to the presence of magnetic energy (soma)
Sudhanva :- Son of Sudhanvan, developing cell, Ṛbhu.
Śūdra :- Without knowledge
Trita :- Three, triple bond, H3 who prepare soma.
Triśira Triplet code
Tvaṣṭā :- DNA
Ten fingers :- Ten, ten rays

Tanunapāta :-	Solar flares
Uṣā :-	Dawn
Vāja :-	Younger, (vigorous one)
Vājinaḥ :-	Steed, war horse
Vaivasvata :-	Son of Vivasvata (DNA)
Veda :-	Knowledge
Vibhvan :-	Eminent
Vivasvata :-	Vivasvata's son manu called as Vaivasvata or yama-yamī, DNA
Viśvarūpa :-	Son of Tvaṣṭā,who is responsible for various forms of living beings
Varuṇa :-	Gravity, gravitational force, as soon as atoms and molecules are get formed they have their existence the same has been described as Varuṇa who is the lord of water means the water molecules are having the cohesive force
Vācaspati :-	Lord of speech
Viṣṇu :-	Course of solar rays from sky, heaven and atmosphere, its two steps are visible but its one step is invisible means absorption of ultraviolet rays in the upper atmosphere by ozone layer,which is its invisible step
Viśvakarmā :-	Creator, carpentor (fundamental energy)
Wheel :-	Cycle, cakra.
Yajña :-	Sacrifice, actions and interactions
Yajñavedī :-	Place of reaction
Yama :-	Chromosome, with information of life and death
Yama-Yamī :-	The twin brother and sister, they represents a pair of chromosomes
Yuj :-	To connect

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Dr. C.P. Trivedi, Ph.D. is Principal at Government Girl's College, Ratlam under Vikram University, Ujjain. He is a former senior fellow, Department of Culture, Govt. of India and Associate, IIAS, Shimla. As a professor of Botany, he has taught Ecology, Physiology and Genetics to Post graduate students. He completed his Ph.D. on Environmental Science, with a firm family background of Vedic culture. He has keen interest in Spiritualism and Astrology, which have turned him towards Veda to trace the scientific facts behind India's cultural heritage and Veda.

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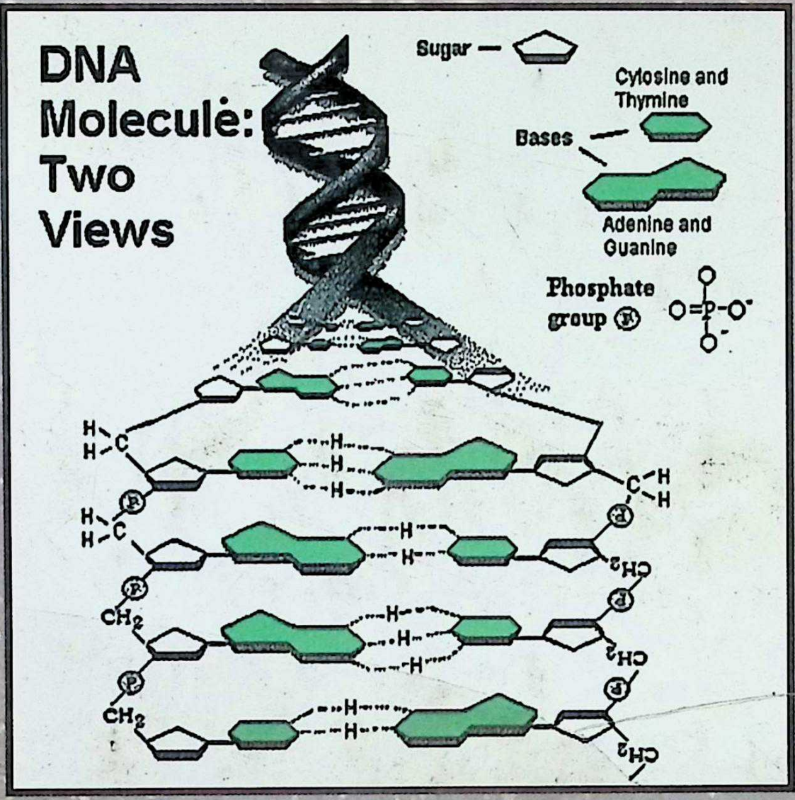
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Bases
Cytosine and Thymine
Adenine and Guanine
Phosphate group Ⓟ
O=P-O⁻
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